

The key components to creating
effective collaborative teaching and learning environments

A THESIS

Submitted in fulfilment
Of the requirements for the degree of
Master of Education
In the University of Canterbury

By
Neill O'Reilly

University of Canterbury

2016

1 ACKNOWLEDGEMENTS

I would like to acknowledge my wife Denise for her unwavering support while I studied and led a school split over two sites post-merger while leading the design and build of a new school! Without her, this thesis would not have been possible. Her patience, support, critique, challenge and consideration have been simply phenomenal.

The participants in the survey were incredibly generous with their time and ideas and I thank them for participating at a time when many did not feel they had the necessary knowledge and skills to be leading in this area. My special thanks to the BOT and staff of Waitākiri School for their patience, perseverance and courage as we have worked and learnt together over the last two years. Finally my thanks for the support, encouragement and probing questions provided by my supervisors Chris and Julie.

2 TABLE OF CONTENTS

1	ACKNOWLEDGEMENTS	1
2	TABLE OF CONTENTS	2
3	Glossary	6
4	ABSTRACT	8
1	CHAPTER ONE: SITUATING THIS STUDY.....	9
1.1	Chapter outline	9
1.2	Rationale.....	9
1.2.1	Canterbury faces rapid change.	9
1.3	Research Project	10
1.3.1	Research questions	10
1.4	Thesis Structure	11
1.4.1	Chapter 1. Introduction.....	11
1.4.2	Chapter 2. Literature review	11
1.4.3	Chapter 3. Methodology	12
1.4.4	Chapter 4. Findings.....	12
1.4.5	Chapter 5. Discussion of Findings.....	12
1.4.6	Chapter 6. Conclusions and recommendations	13
2	CHAPTER TWO: LITERATURE REVIEW.....	14
2.1	Open Plan Education.....	14
2.1.1	Open Plan Education	14
2.1.2	A student centred constructivist learning environment	22
2.2	Teacher collaboration and the transition to co-teaching	24
2.2.1	Teacher Collaboration	24
2.3	Co-teaching and team teaching what are they?	27
2.3.1	Co-teaching	27
2.3.2	Benefits of co-teaching	28
2.3.3	Team teaching.....	29
2.3.4	Benefits of team teaching	30
2.3.5	Limitations of Co-teaching and Team teaching.....	31

2.4	Flexible Learning Spaces	32
2.4.1	Historical context	33
2.4.2	Flexible Learning Spaces.....	34
2.5	Professional learning and professional development.....	36
2.6	Leadership and learning environments	38
2.7	Support, Systems and resources.....	39
3	CHAPTER THREE: RESEARCH METHODOLOGY.....	41
3.1	An overview of educational research	41
3.1.1	Research Paradigm.....	41
3.1.2	Interpretive approach	42
3.1.3	Quantitative Research.....	43
3.1.4	Qualitative Research	43
3.2	Research Strategy: Mixed methods, survey and interviews	44
3.2.1	Mixed methods	44
3.3	Data collection	45
3.4	Data analysis	47
3.5	Participants and settings.....	48
3.6	Validity	51
3.7	Ethical considerations.....	52
4	CHAPTER FOUR: FINDINGS	
	The Key	
	components of an effective collaborative teaching and learning environment	54
4.1	Student centred learning / Learners at the centre	55
4.2	Shared beliefs and understandings.....	58
4.3	Skill Development	60
4.3.1	Communication Skills	60
4.3.2	Digital skills.....	62
4.3.3	Leadership skills when working in and leading a FLS	63
4.4	Support for Staff	64
4.4.1	Mindsets.....	64
4.4.2	Teachers' professional learning	65
4.4.3	Principals professional Learning.....	67

4.4.4	Leadership	68
4.4.5	Support Staff	70
4.4.6	Resourcing.....	71
4.5	Smart systems in place	73
4.5.1	Systems for meeting students’ needs	73
4.5.2	Smart Digital tools.....	75
4.6	Strategies understood and enacted.....	76
4.6.1	Effectiveness of co-teaching	78
4.7	Structures and processes established school wide.....	79
4.7.1	Employment Process.....	79
4.7.2	Appraisal Process	80
4.7.3	Team Size	81
4.7.4	Process for selection of the co-teaching team.....	83
4.7.5	Report writing	84
4.8	Space flexibility	85
5	CHAPTER FIVE: DISCUSSION OF FINDINGS	87
5.1	Developing shared beliefs and the influence of mindset	88
5.2	Situating learners at the centre	93
5.3	Effective pedagogy in a FLS.....	96
5.3.1	Professional Learning and Development	99
5.3.2	Leadership.....	101
5.3.3	Identifying effectiveness of co-teaching	103
5.4	Collaboration and collaborative teaching.....	104
5.4.1	Collaboration; Communication and inter-personal skills.....	104
5.4.2	Collaboration; Developing a range of co-teaching strategies	105
5.4.3	Maximising the potential of flexible learning spaces.....	106
5.4.4	Smart systems	107
5.5	Transition to student centred co-teaching, learning from the past	108
6	CHAPTER SIX: Conclusions and Recommendations.....	113
6.1	Conclusions.....	113

6.2	Key Recommendations	120
6.2.1	Situate learners at the centre	120
6.2.2	Develop shared understandings about <i>Effective Pedagogy in a FLS</i>	121
6.2.3	Develop skills of collaboration	121
6.2.4	Implement specific co-teaching strategies.....	122
6.2.5	Analyse the impact of the co-teaching.....	122
6.2.6	Strategically prepare for change and the future	123
7	REFERENCES	124
8	APPENDICES.....	133
8.1	APPENDIX A: Survey questions; Teachers.....	133
8.2	APPENDIX B: Survey questions; Deputy principals and principals	136
8.3	Appendix C: Interview Questions; Teachers	137
8.4	Appendix D: Interview questions; Principals and DP's.....	137
8.5	Appendix E: Information letter for participants	138
8.6	Appendix F: Consent for participants	139
8.7	Appendix G: Information letter for Boards of Trustees	140
8.8	Appendix H: Consent form for the Board of Trustees	141
8.9	Appendix I: Flexible Learning Space Examples.....	142
8.10	Appendix J: Designing Quality Learning Spaces Guidelines	142
8.11	Innovative Learning Environment Assessment Tool	143

3 Glossary

Term	Definition
Adaptive expertise:	The ability to respond flexibly in complex contexts, recognising when particular rules or principles do not apply (Timperley 2013) and use the appropriate/alternative response. It is about developing students' expertise (and mindset) to be able to choose the right learning strategy for each learning situation.
Breakout spaces:	Spaces apart from the main room where students can go to learn on their own, or in small groups.
Collaboration:	When individuals work together as a team on a problem, project or goal in an organised way, learning from and with one another.
Collaborative learning:	Where students collaborate together to achieve a desired goal or outcome, this can be two or more students.
Constructivist Curriculum:	The acquisition of knowledge and learning through making sense of the world through accumulating knowledge and building experiences, constructing new knowledge and understandings
Co-teaching:	Co-operative teaching or as it is more commonly known, co-teaching, occurs when two or more teachers share responsibility for a group of students, usually within one workspace, through a shared approach that includes the pooling of resources and joint accountability. Typically one teacher is a general education teacher and the other is a special education teacher employed to support special needs students in the mainstream classroom. Typically co-teaching involves two teachers working in one typical classroom with 20-30 children.
Flexible learning Space (FLS):	Spaces designed to be multidisciplinary and communal spaces able to be reconfigured in a number of ways for different learning modes. These spaces may include operable walls and breakout learning areas
Innovative Learning Environments (ILE):	The name given to new buildings built by the MoE from 2015 onward, from an OECD perspective, the complete physical, social and pedagogical context in which learning is intended to occur. Having the right property and flexible learning spaces (FLS) in particular is only one part of creating an ILE.
Just in time learning:	Learning that is undertaken at the moment of need usually based on a conceptual challenge or inquiry, e.g: Learning how to write a letter due to a need to communicate with a third party about an inquiry
Learning Coach:	A teacher role where the teachers engages in one-to-one conversation focused on improving performance through questioning, active listening and appropriate challenge in a supportive and encouraging climate. Coaching is about teacher resounding to learners needs not a predetermined learning outcome
Mindset:	A mental attitude or disposition formed from experience that predetermines a person's responses to and interpretations of situations. Mindsets can be fixed, growth or mixed (Dweck, 2007)
Modern learning Environment (MLE):	The name given to new buildings built under the MoE guidelines 2008-2014
Modern Learning Practices (MLP):	A term used by some PLD providers and tertiary organisations to represent aspects of effective pedagogy, 21 st century teaching and learning and learning with and through technology. Subsequently described by ERO as "Current best practice." Suggestive of responsive teaching practice, student ownership of learning, high levels of engagement, authentic contexts, the development of

competencies and the strategic use of digital technologies to connect, collaborate, create and share learning.

Personalised Learning: Learning experiences and opportunities tailored for the individual based on need and usually negotiated between teacher and student, representative of ako

Self regulated learners: Students who is managing self and learning to make choices in relation to learning that will increase engagement, motivation, task completion and achievement of goals. Also able to deal with setbacks in learning

Student Agency: The ability of a student to make choices, direct learning, act and advocate for self, to contribute to the learning environment.

Student Centred learning: Learning focussed on the student and to meet the needs of the student. Personalised at times, connected to the world of the student and responsive to student needs, feedback and motivations

Team teaching: Team teaching as referred to in the literature typically refers to middle school teaching in the United States where teams of teachers take responsibility for a group of up to 150 students. It is important to note in reference to Team teaching in the USA middle school context the teachers do not work in the same physical space. The term Team teaching was at times used to describe groups of teachers working together in the open plan era.

4 ABSTRACT

The Canterbury Earthquakes of 2010 and 2011 and subsequent re-organisation and rebuilding of schools in the region is initiating a rapid transitioning from traditional classrooms and individual teaching to flexible learning spaces (FLS's) and co-teaching. This transition is driven by the Ministry of Education property division who have specific guidelines for designing new schools, re-builds and the five and ten year property plan requirements. Boards of Trustees, school leaders and teachers are faced with the challenge of reconceptualising teaching and learning from private autonomous learning environments to co-teaching in Flexible Learning Spaces provisioned for 50 to 180 children and two to six teachers in a single space. This process involves risks and opportunities especially for teachers and children.

This research project investigates the key components necessary to create effective co-teaching relationships and environments. It explores the lessons learnt from the 1970's open plan era and the views of 40 experienced practitioners and leaders with two or more years' experience working in collaborative teaching and learning environments in sixteen New Zealand and Australian schools. The research also considers teacher collaboration and co-teaching as evidenced in literature.

The findings lead to the identification of eight key components required to create effective collaborative teaching and learning environments which are discussed using three themes of student centeredness, effective pedagogy and collaboration. Six key recommendations are provided to support the effective co-teaching in a flexible learning space:

1. Situate learners at the centre
2. Develop shared understanding about effective pedagogy in a FLS
3. Develop skills of collaboration
4. Implement specific co-teaching strategies
5. Analyse the impact of co-teaching strategies
6. Strategically prepare for change and the future

1 CHAPTER ONE: SITUATING THIS STUDY

1.1 Chapter outline

Why does this study focus on Flexible Learning Spaces (FLS) and co-teaching?

This chapter provides an overview of the research project, the structure of the thesis and the methodologies utilised. It begins by explaining the rationale for undertaking the research and the concerns that have led to the study. The next section sets out the research objective, methodology and research question. The chapter concludes with an outline of the thesis structure and the subsequent chapter contents.

1.2 Rationale

1.2.1 Canterbury faces rapid change.

The earthquakes in 2010 and 2011 changed the face of Canterbury forever. The death, destruction, displacement and resultant financial implications of the Canterbury earthquakes are unprecedented in New Zealand history. The immediate implications for the education sector included school closures, mergers, co-locations and relocations. As the principal of Windsor School in the East of Christchurch I was intimately involved in the events of 2011 and resultant aftershocks. Windsor School, with 620 pupils, suffered minor damage with the school subsequently becoming a 'hub' for other displaced pupils. The school roll stayed steady during 2011 and 2012, and despite the school's location in the east the future looked secure. It was a surprise then, for myself and the Board of Trustees to be faced with a merger proposal with Burwood School, our neighbouring school, in late 2013. The net result of the proposal was the merger proceeding, and on 28 January 2014, Waitākiri Primary School was created and began operating on two sites with 800 children. On the 15th of January 2014 planning began to build a new school, a 'Modern Learning Environment,' (MLE) for a future roll of 650 children. One of the defining characteristics of the new school would be Flexible Learning Spaces (FLS's), which would enable collaborative teaching and learning within six learning studios; each accommodating 100-115 children and four to five teachers. This new school

represented a significant paradigm shift for teachers, children and the community. Teachers would be required to transition from autonomous teaching in traditional classrooms to co-teaching in de-privatised, open, flexible learning spaces. To compound matters, this shift was to take place in the face of some negative reporting from the media regarding MLE's and significant scepticism from parents and some teachers. The apparent scarcity of research regarding co-teaching in a FLS and the challenges facing both Waitākiri School and community and imminent changes for other schools in Canterbury prompted this research.

1.3 Research Project

This research is designed to identify the key components required to create effective co-teaching relationships and practices in Flexible Learning Spaces. These are environments where two or more registered teachers work with two or more equivalent classes in one shared space. The research was initiated at the start of 2015 with the intention of supporting educators, whanau, professional learning organisations and the Ministry of Education as the Canterbury rebuild gained momentum. The participants in the study are teachers and leaders from schools in New Zealand and Australia with a minimum of two years' experience working in a FLS. This research draws on the lived experience of educators in the field together with an analysis of the open plan era of last century.

1.3.1 Research questions

The following questions guided my research:

Main question:

- *“What are the key components of an effective co-teaching relationship?”*

Supplementary questions:

- *“How can and do educators determine if their collaborative teaching and learning environment is effective; what evidence could educators use?”*
- *“What are the risks and opportunities to stakeholders of co-teaching in a FLS?”*

1.4 Thesis Structure

1.4.1 Chapter 1. Introduction

The introduction situates the study and introduces the main points.

1.4.2 Chapter 2. Literature review

Framing questions:

- 1. Does the “Open Plan era” of the 60’s and 70’s have any relevance for this study and if so what can we learn from the research?*
- 2. What is teacher collaboration and what roles do co-teaching and team teaching play in collaboration?*
- 3. What are Flexible learning Spaces and does ‘space’ have any influence on teaching and learning?*
- 4. What role does professional learning and development play in the change process?*
- 5. What influence do leadership have in creating effective teams and learning environments?*
- 6. How important are support for staff, systems and resources when initiating change?*

This chapter investigates the open plan era including the role of a student centred constructivist approach to teaching and learning. Next the impact of collaboration in teaching and the various ways collaboration is expressed in schools is explored. This is followed by an review of the origins, strengths and limitations of both co-teaching and team teaching from an international and local perspective and the implications for teaching and learning practice. Physical spaces and flexible learning spaces are reviewed as are the role of professional learning and leadership. The chapter concludes by examining the role support for teachers, systems and resourcing play in enabling or restricting change.

1.4.3 Chapter 3. Methodology

Framing questions:

1. *Why was an interpretive mixed method approach selected?*
2. *How was the research project implemented and how were the results analysed?*

This chapter explains the rationale for using an interpretive mixed method approach, linking literature and exploring the role of quantitative and qualitative research. A description of the research strategy follows with an overview of the processes used to plan for, implement and analyse surveys and interviews for this study. The chapter concludes with a discussion of validity and ethical considerations including an overview of the data collected.

1.4.4 Chapter 4. Findings

Framing questions:

What are the distinctive findings of this study?

This chapter outlines the findings from the surveys and interviews. The interviews and surveys were analysed for themes. Eight components emerged from the findings as key factors to supporting effective co-teaching in a FLS.

1.4.5 Chapter 5. Discussion of Findings

Framing question:

What is the relationship between the findings of study and the research questions and the literature?

The chapter commences by discussing the role beliefs and mindset play in learning environments. This is followed by a discussion of the eight components using three major themes; Situating learners at the centre, Effective pedagogy in a FLS and Collaborative skills. The chapter concludes by considering the lessons from the open plan era.

1.4.6 Chapter 6. Conclusions and recommendations

Framing questions:

1. *What are the conclusions from this study?*
2. *What key recommendations would make a significant impact on the successful implementation of co-teaching in a FLS?*

This final chapter summarises the conclusions from this research with some supporting illustrations which help clarify the key understandings for those transitioning to co-teaching in a FLS. The conclusion is followed by key recommendations to assist schools make a successful transition to and implementation of co-teaching in a FLS.

Chapter Summary

The educational landscape in Canterbury is changing rapidly as a direct result of the 2011 and 2012 earthquakes. One of the most significant changes is the creation of Flexibles Learning Spaces (FLS's) designed to support student centred learning and co-teaching. Some educators in New Zealand and Australia have significant experience working successfully in these spaces, their reflections and recommendations together with the available literature will be analysed to develop understandings of the key components required to create effective co-teaching relationships in a FLS. Teachers, children, leaders and the community will benefit from improved understanding of effective co-teaching practice together with strategies, systems, and structures to support the transition to working collaboratively in a FLS.

2 CHAPTER TWO: LITERATURE REVIEW

This review examines the open plan era and the implications for the contemporary shift to co-teaching in flexible learning spaces. Teachers collaboration is examined to determine potential benefits for learners as are co-teaching and team-teaching. Flexible learning spaces themselves are investigated to determine the impact space has on teaching and learning. The role of professional learning and development is considered next as are leadership, resourcing and the importance and place of support for staff and smart systems.

2.1 Open Plan Education

2.1.1 Open Plan Education

The rationale for, implementation of, practice in and physical spaces created within a contemporary FLS, have similarities to the open plan era. There are risks and opportunities immediately evident regarding the current trend. Risks if lessons of the past are unheeded, opportunity to learn from the past and create a contemporary and improved version of the open education movement (Cuban, 2004; Hattie, 2015; Nair, 2014). Although much comparison is made between the open plan era of last century and the current trend to co-teaching in more open spaces, significant differences are evident. In contrast to the open plan era, the current approach is well supported by a complementary national curriculum, neuroscience and research regarding effective teaching and learning (Department of Education, 1977; Cameron & Robinson, 1986; Ministry of Education, 2007).

Open plan units utilised 'open' or 'variable' spaces and provided for student agency through opportunity for students to select activities, the use of rich learning resources and activities, and curriculum integration with a focus on small group and individual teaching rather than large group instruction (Cuban, 2004; Horwitz, 1979). The movement favoured children setting the pace for their learning, provision of artefacts for students to interact with and learn through, and a lack of formal furniture historically found in a school (Hutchinson, 2004). Children were encouraged

to select their own learning place and were free to sit on the floor or bean bags with couches and other informal furniture evident in the space, this was in direct contrast to traditional schooling with single desks in a row facing the front (Cuban, 2004). Collaborative learning was encouraged and resources were provided to encourage imagination, creativity, intrigue and problem solving. In open plan classrooms, rather than dispensing knowledge teachers became facilitators of learning (Cameron & Robinson, 1986; Cuban, 2004). The open education movement was a significant departure from the traditional classroom and pedagogy of the day.

Open plan education encapsulated the philosophy of student centred education through a constructivist approach (Cuban, 2004). The writings of Dewey, Vygotsky, Piaget and Montessori were influential in a more humanistic child centred philosophy to teaching and particularly, learning (Nair, 2014). Proponents argued learning and the curriculum would have more meaning when connected to the world of the child and connected to their interests and passions (Brooks & Brooks, 2001). This approach contested to the direct instruction of the time with teacher control characterised by the teacher at the front, teaching the whole class and a pre-determined curriculum to be measured through testing and exams. In the traditional teacher centred approach the teacher controlled all aspects of the environment, with large group or whole class, direct instruction and a lack of student choice or agency. In addition to a student centred rationale, the creation of open plan units was attributed to financial necessity together with a desire to de-stream primary schools (Bennet, Andrae, Hegarty & Wade, 1980; Martinho & da Silva, 2008).

The physical spaces were either purpose built units or retro fit of existing classrooms. In the case of retro fits, corridors, cloak bays and toilets were repurposed as teaching and learning spaces with classroom walls removed to connect rooms (Cameron & Robinson, 1986). Purpose built spaces were typically two, three or four classroom equivalents with 'classes' opening to a central space together with withdrawal and breakout rooms. Finmere School in the UK has been identified as the 'first' open plan

school created in 1959 (Fig. 1) followed by other such as a Eveline Lowe Primary School (Fig. 1.1) in 1966. The design of Finmere Primary removed corridors and walkways and connected 'classrooms' in this small rural two teacher school. The school attracted considerable attention at the time and was a popular destination for educators and designers (Woolner, 2010)

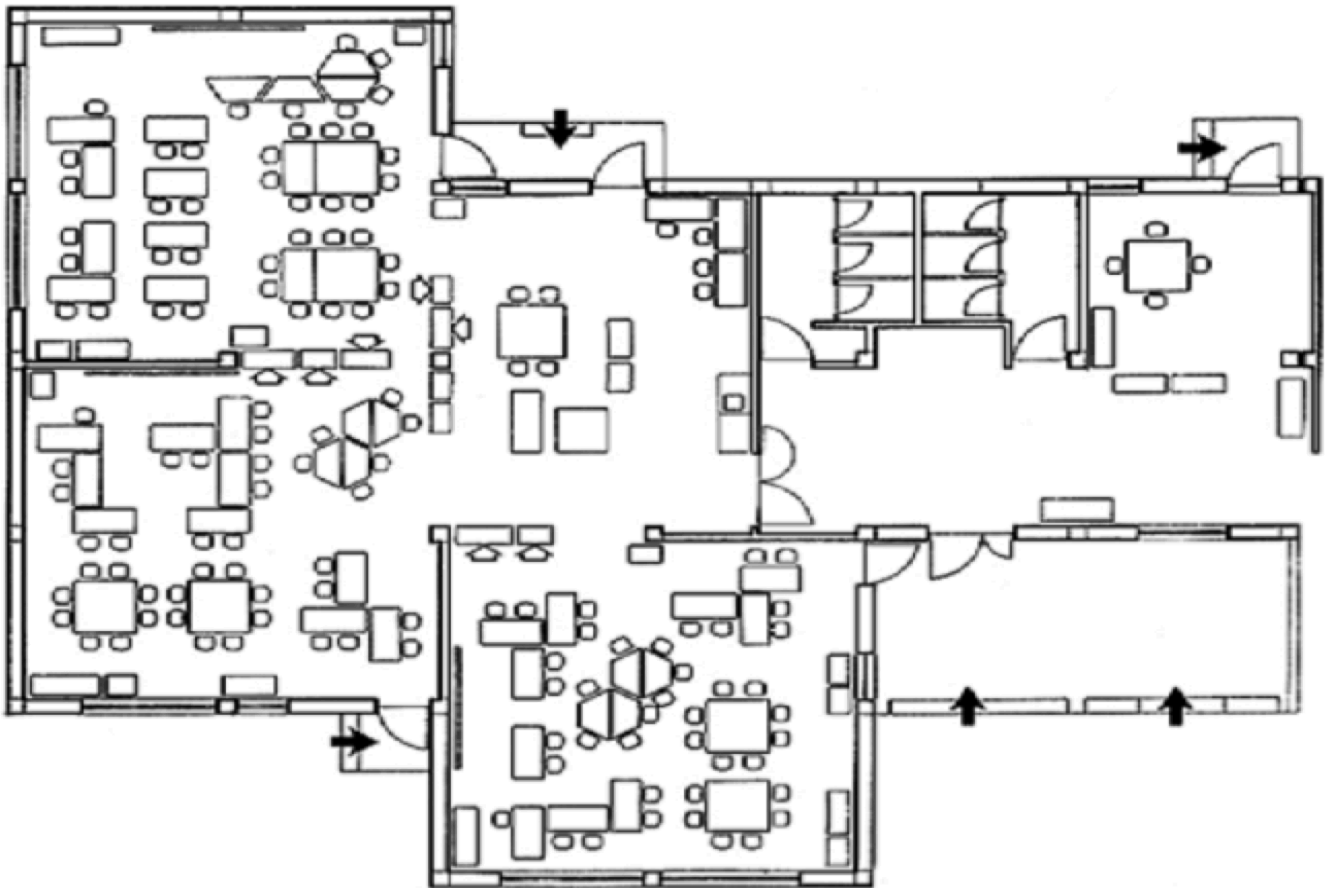


Fig. 1. Finmere Primary School, UK (Woolner, 2010)

The design provided opportunity for needs based teaching, provision of a range of learning zones and utilised folding partitions and supported the child centred approach popular at the time. Finmere School attracted attention and the design was followed by other purpose build schools of a significantly larger size such as Eveline Lowe Primary (Fig. 1.1)

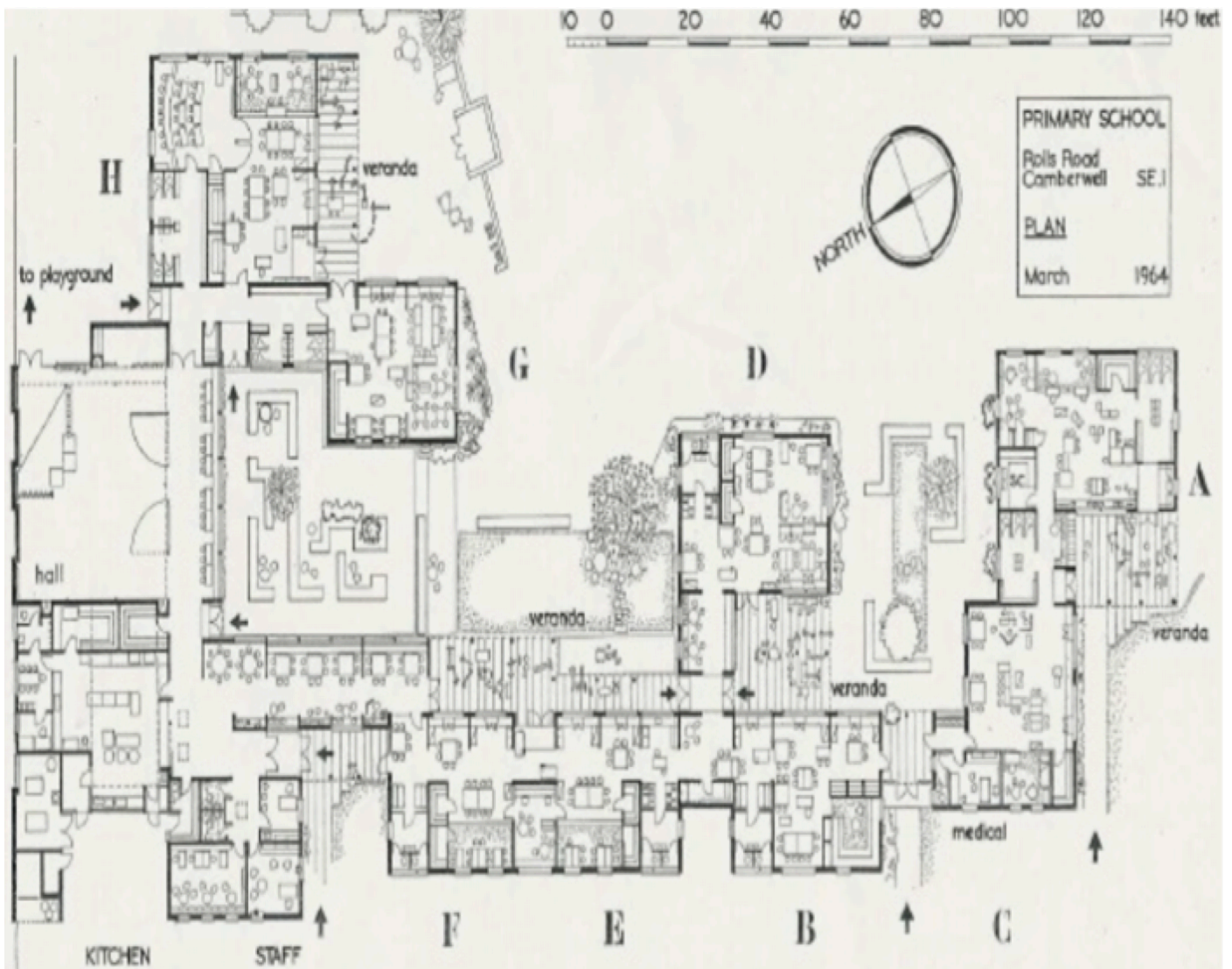


Fig. 1.1. Eveline Lowe Primary School, UK 1966 (Woolner, 2010)

Eveline Lowe Primary represented a purposeful and significant shift in design for a large urban school and was prototyped on Finmere Primary. Following the construction of Eveline Lowe Primary, open plan schools became more common with all new schools designed and built in this way in the UK by 1976 (Woolner, 2010). The school included breakout learning areas, connected learning areas and connection to the outdoors.

Breakout or withdrawal rooms were described as essential by teachers and principals, often with at least one being designated a 'quiet room' (Galton, Hargreaves, Comber,

Wall & Pell, 1999). As time progressed so too did the naming of the spaces, moving from open plan schools (this attracted some negative publicity at the time) to variable space schools (Cameron & Robinson, 1986). Variable space schools were less 'open' in their nature with more operable walls and shared spaces connecting classroom size rooms (Woolner, 2010). Acoustic treatments were considered, however they were more evident in the purpose built units. Architects at the time considered important factors to be acoustics, natural lighting, insulation and natural ventilation (Department of Education, 1977). A number of open plan units are still evident within local schools in Canterbury (Parkview School, Queenspark School, Shirley Primary for example) with the walls re-inserted creating traditional classrooms. Open plan units provided flexibility for teachers and students and were designed to enable the emerging pedagogy and incorporate the latest advances in building design and technological capability.

The open plan team teaching approach of the 1960-1980's had significant benefits for learners with teachers able to group learners more effectively to respond to individual needs and enhance social well-being of students who developed as more capable and confident self-regulated learners (Cohen, 2010; Department of Education, 1977; Cameron & Robinson, 1986; Hattie, 2009). School inspectors at the time considered children in open plan units had more opportunity for independent learning than in conventional classrooms. Teachers working in the spaces considered there were significant benefits for "most children, especially bright, creative or confident pupils...also... average pupils, slow learners, and under-achievers in both reading and mathematics, and Maori and Pacific Island children" (Department of Education, 1977, p. 93). Principals considered staff utilisation was more effective in open plan units due to the benefit of collegial support and ongoing professional development, they also identified significant benefits for beginning teachers and teachers who were less proficient (Cameron & Robinson, 1986).

Comprehensive studies were undertaken in the 1970's to investigate the impact of the open plan approach. These reviews identified children learning through the direct instruction approach in traditional classrooms achieved slightly better outcomes on achievement tests than children in open plan spaces. However, those learning through the open plan approach had somewhat better outcomes in creativity, problem solving, abstract thinking, attitudes toward school, independence, curiosity and attitudes toward teachers (Horwitz, 1979; Peterson, 1979). Peterson (1979) identified the importance of teachers understanding the needs and motivations of the learner, or groups of learners and then teaching in a way that was most likely to cause learning to take place. For example, it was found that high achieving task orientated learners were more successful when given the opportunity to learn in a more open plan, student directed approach. Where lessons included the teaching of basic skills (for example in reading, writing and maths) a direct instruction approach was identified as more beneficial, if the teaching was problem solving or creative focused, a more open plan and student centred approach would be more appropriate (Peterson, 1979). These findings indicated teachers would require specific training to work effectively in the spaces (Department of Education, 1977; Cameron & Robinson, 1986).

Principals and teachers with experience in open plan units at the time did have concerns about the risks to certain children. The concerns were for, "Shy and (or) aggressive pupils; for new entrants and emotionally disturbed children." (Department of Education, 1977, p. 93). These concerns were noted in both the 1977 and 1986 reports with recommendations from teachers and leaders that adequate provision be made for children to learn in traditional classrooms or equivalent spaces rather than solely large open plan spaces. This led to a recommendation from the committee reviewing open education for each open plan unit to have multiple breakout spaces with one large enough to accommodate up to 15 students together with resources space and teacher workroom in each unit (Department of Education, 1977).

Teachers and leaders of the open plan era noted some significant challenges to working in the space. These included a lack of adequate preparation for working in an open plan; inadequate systems to support collaborative practice, a lack of appropriate storage spaces and teacher workrooms and to a lesser degree some noise challenges (Department of Education, 1977; Cameron & Robinson, 1986; Cuban, 2004). Some teachers also reported higher stress levels working in open plan units caused by the impact of having to work with, and be observed by others, the number of children in the unit, time required to meet as a team for planning and preparation, and rigid daily timetable requirements (Department of Education, 1977; Cameron & Robinson, 1986). Principals commented on the importance of staff relationships in the open-plan units and the subsequent implications for placement of staff (Department of Education, 1977). A number of factors created significant challenges for teachers working in these open spaces resulting in resistance from some teachers with traditional classroom practices resurfacing. These traditional practices were not suited to the open plan environment.

There is evidence teachers can be very resistant to change that is externally imposed especially if the change places teachers in a position of perceived vulnerability (Alterator & Deed, 2013; O'Neill, 2004; Troen & Boles, 2012). When under pressure, teachers typically revert to traditional ways of working which reflects how they learnt and were taught to teach (Cameron & Robinson, 1986; Hargreaves, 1998). Some teachers who were working in the open plan units may have found their autonomy and privacy challenged and sought strategies to remain private and autonomous in these open spaces. By the early 1980's over 51 percent of teachers working in open plan spaces were teaching independently and working in the space as if it was a traditional classroom (Cameron & Robinson, 1986). The teaching approaches most evidenced in open plan units was team teaching, co-operative teaching or traditional teaching in an area within the space (Cameron & Robinson, 1986; Department of Education, 1977; Martinho & da Silva, 2008).

By 1985 many open plan units would comprise two or three teachers (two being most popular) with between 80-90 students. It was recommended the maximum space would be for the equivalent of four classes of 100-120 children (Department of Education, 1977). Teaching and learning typically occurred in home or class groups for the morning (reading, writing and mathematics) and then integration for the afternoon topic learning. The resultant teaching practice in open plan units was a significant backward step from the ideals of open and progressive education of full integration, student led learning and teachers acting as facilitators (Cuban, 2004). Even within the open plan units where co-operative teaching was occurring, many different practices emerged that were described as co-operative. These practices ranged from co-operation by working with two or more classes for singing or reading a story, through to fully collaborative practice with integration throughout the day and teachers sharing responsibility for the whole group rather than individual classes (Brogden, 2007; Cameron & Robinson, 1986). Teachers identified a lack of pre service or in-service support limited their ability to meet the ideals of the open plan classrooms (Cameron & Robinson, 1986; Department of Education, 1977). It is evident as the era came to an end in the mid 1980's many teachers working in these spaces had already reverted to traditional teaching practice of one teacher : one class, with spaces divided with furniture to give teachers their own 'classroom'.

The demise of open plan schools was evidenced by the gradual rebuilding of walls and doors within the open plan spaces starting in the late 1970's and early 1980's (Brubaker, 1998). A number of factors led teachers and principals to wall up the spaces including rejection of the notion of child centred education, the complexity and lack of understanding of co-teaching, a lack of collaborative skills, teacher conflict, opposition to change, noise levels, and perhaps most significantly, teacher lack of understanding and ownership of the approach (Cuban, 2004; Cameron & Robinson, 1986; Nair, 2014; O'Neill, 2004; Woolner, 2010). Further complicating the open plan era was the, 'top down', approach where it was expected design and buildings would drive pedagogy rather than a, 'bottom up', approach with teachers

and school leaders driving the change and requesting spaces to meet pedagogical needs (Fisher, 2005). Significantly, many teachers were not prepared for the pedagogical shift necessary for teaching in these spaces nor was there adequate PLD with regard to collaborative skills, systems, strategies and structures considered necessary to work effectively in the units (Brogden, 2007; Cameron & Robinson, 1986; Department of Education, 1977). Perhaps the defining factor in the demise of the open plan movement was the political change of the early to mid 1980's with the call for increased accountability, a return of the 'three R's' and a backlash to the experimental philosophy and child centred approach of the 1960's (Cuban, 2004; Brogden, 2007; Nair, 2014; O'Neill, 2004).

2.1.2 A student centred constructivist learning environment

Central to the open plan movement of the last century and the recent move toward FLS's is the notion of student or child centred learning through a constructivist curriculum. Enabling students as independent, self-directed and successful learners is a principal goal of education (Baker, 2013). Student centred learning is at the heart of the New Zealand Curriculum (2007) with the vision for "*Confident, connected, actively involved lifelong learners.*" (Ministry of Education, 2007, p. 7). A student centred approach is also affirmed by the principles, values and key competencies contained in the New Zealand Curriculum. The central premise of a student centred constructivist learning environment is learners internalising and reshaping new information, and from this, constructing new meanings and deep understandings (Brooks & Brooks, 1999; OECD, 2012). A student centred approach is enhanced by teacher collaboration meeting the needs of learners using teachers skill, experience, knowledge of the learner and the learner's needs to create effective and meaningful learning opportunities (Hattie, 2015b; OECD, 2009). Teachers who have a more advanced understanding and implementation of student centred learning environments and constructivist learning are more likely to create positive and orderly learning environments (OECD, 2009). A student centred and constructivist

approach to teaching and learning is foundational in creating an effective collaborative teaching and learning environment in a FLS.

Self-regulated learners and personalised learning are at the heart of a student centred learning environment. The key competency development of a self-regulated learner is considered essential to allow student access to the curriculum (Ministry of Education, 2007). Self-regulated learners utilise metacognitive strategies; setting goals, developing plans, managing their time, monitoring their learning progress through self-evaluation and self-reporting and ultimately taking control of their own learning (Baker, 2013; Bird, 2009; Education Endowment Foundation, 2015; Hattie, 2009). In a FLS of two to four equivalent classrooms, student self-regulation has significance. Spaces that have breakout areas, withdrawal areas and nooks and crannies where children are unsupervised and can be unseen require students take responsibility for self. Self-regulation is less possible if the environment is 'controlled' by the teacher with the teacher determining and controlling all aspects of the environment including what is to be learnt, who will learn it, where it is to be learnt, how learning and assessment will occur, who learns with who and when the learning will take place (Absolum, 2006; Brooks & Brooks, 1999; Clarke, 2014; Madjar & Assor, 2013). A lack of understanding about student centred and constructivist learning environments caused challenges to teachers in the open plan era and has the potential to cause similar problems in the modern era in flexible learning spaces.

Teacher controlled environments limit student self-regulation and force students to be reliant on the teacher and teacher control of the learning environment (Absolum, 2006). In a student centred environment teachers seek teaching strategies and techniques to support student agency and self-regulation. Teachers have the opportunity to scaffold the learning environment by the ways they interact with students. Students afforded the opportunity to learn in a scaffolded learning environment through guided, action and experiential learning have the potential to develop adaptive expertise. Adaptive expertise "Is the ability to apply meaningfully-

learnt knowledge and skills flexibly and creatively in different situations” (OECD, 2012, p. 3). Guided learning occurs when the teacher pre-determines the learning experience, and planned outcomes and action learning occurs when students become more self regulated and are involved in planning and organisation. Experiential learning will occur when the student leads the learning and determines content, outcomes and learning experiences (OECD, 2012). Teachers seeking to create a student centred environment re conceptualise their teaching strategies and the ways in which they work with other teachers to best meet the needs of learners.

2.2 Teacher collaboration and the transition to co-teaching

2.2.1 Teacher Collaboration

Teacher collaboration occurs in situations where teachers work together in a co-ordinated way to achieve common goals. Hargreaves and Fullan provide a useful continuum of collaboration from, “Scanning and storytelling (exchange of ideas, anecdotes and gossip), to help and assistance, to sharing (of materials and teaching strategies), to joint work where teachers teach, plan or inquire into teaching together” (2012, p. 112). This ‘joint work’ has significant benefit for teachers and students with teaching focussing on work that has the potential to improve student outcomes, well-being and self-regulation. The process of joint work with teachers planning, assessing and mining data collectively has been defined as professional learning communities or PLC’s (Eaker, DuFour & Burnette, 2002; DuFour & Eaker, 1998; Hargreaves & Fullan, 2012; Hattie, 2012; Hord, 1997; Kise, 2006; Robertson, 2005; Stewart & Prebble, 1993; Timperley & Parr, 2004; Stoll, 2011). The role of PLC’s is to transform learning and value the professional integrity of staff while improving teacher competence and knowledge through strategic collegial interaction. Of particular benefit is the sense of shared problem solving as teachers attempt to identify strategies to engage learners and assist with learning (Hattie, 2009; Marzano, 2003; Lovett & Verstappen, 2003; Timperley, 2008). PLC’s are characterised by the

use of quantifiable evidence and shared experience to enquire into teaching and learning (Ross, 2013). Effective PLC's support a process of continuous improvement, requiring shared vision, purpose and goals. PLC's as a collaborative endeavour, have the potential to assist schools with continuous improvement enhancing teacher competency and student learning outcomes.

Some have described PLC's as creating, "contrived collegiality," where leaders require teacher meet to assess, mine and moderate data, resulting in token responses (Hargreaves & Fullan, 2012, p. 118). An inherent problem in this traditional form of collaboration is the lack of opportunity for teachers to participate in genuine, ongoing learning about teaching and learning in the context where they work (Elmore, 2004; Fullan, 2007; Sergiovanni, 1992). While PLC's have the potential to improve teacher practice and learning outcomes, limitations are evident in this approach. Hence, while teachers may appear to be collaborative, often the work undertaken when collaborating is contrived with teachers remaining isolated and managing student learning and well-being in their own class (Du Four, 2011; Feiman-Nemser, 2012; Hattie, 2015b). A significant challenge to a collaborative culture is the attitude and responsiveness of teachers when they are able to retreat to their own private classroom rather than a collaborative environment (DuFour, 2011).

Research evidences collaboration as key to improving schools and schooling systems (Fullan, 2011; Hattie, 2009; Hord, 1998). Through collaboration and the provision of mutual learning opportunities and collaborative support structures, improvements are evident in teacher competencies, retention of beginning teachers, training of student teachers and student learning outcomes (Fullan, Cuttress, & Kilcher, 2009; Fullan, 2011; 2014; Hargreaves & Shirley, 2009; Sergiovanni, 2007). Relative to their own past performance, individuals will outperform themselves when working collaboratively. Furthermore, collaborative schools outperform individualistic schools and are characterised by sustained improvement (Fullan, 2008; Rosenholtz, 1991; Marzano, Waters, & McNulty, 2005). Conversely, a limiting factor in schooling

improvement is the lack of collaboration; eliminating teacher opportunity to learn reciprocally on a continuous basis within their own classrooms (Elmore, 2004; Levin & Fullan, 2009). Collaboration has the potential to significantly improve not only how teachers work and learn but also the effectiveness of their work and therefore outcomes for learners.

Working within a FLS provides opportunity for teachers to collaborate on an ongoing basis with other professionally trained teachers. This provides the ideal collaborative workplace where teachers can work, debate, plan and problem solve together observing colleagues' lessons sharing successes as well as challenges (Sergiovanni, 1992). Teachers collaborating in this way typically described the process as team teaching or co-teaching. This approach to collaboration allows the conversations and decisions made at team, syndicate or PLC meetings to be implemented in real time with support from colleagues through collegial feedback and critique (Anderson & Speck, 1998). Collaborating in this way adds a significant layer of complexity to the teaching process with teachers needing to spend time collectively before and after lessons planning, evaluating, sharing information, reviewing timetables and discussing teaching strategies (Johnson, 2003; University of Kansas, 2014). Agreement about collaboration and how collaborative practices will be enacted is necessary for FLS's to be used to their full potential (Cameron & Robertson, 1986; Department of Education, 1977; Ministry of Education, 2015). Teacher collaboration is necessary to achieve continuous improvement in the schooling sector, however with the constraints of teachers returning to their autonomous classroom teacher collaboration has its limitations. Schools with FLS's have the opportunity to maximise teacher collaboration with teachers having the support and critique of their colleagues in an authentic collaborative working environment. The authentic support and challenge of collaborating in a single space with other professionals gives teacher opportunity to maximise agreed strategies designed to improve student learning outcomes.

2.3 Co-teaching and team teaching what are they?

There remains some confusion in the New Zealand education sector about what co-teaching and team teaching refer to, how they are enacted and the benefits and limitations of both approaches. Team teaching is most familiar to New Zealand educators, especially those who remember the open plan classroom era of the 1960's to 1980's. The open plan approach required two or more teachers to work together in a shared space to meet the needs of learners through team teaching (Cuban, 2004). Team teaching internationally is more likely to refer to the American Middle School Movement approach where a team of teachers take responsibility for a group of approximately 150 students. Team teachers in this context retain their own class and classrooms for teaching. Co-teaching has origins in the 1960's inclusive schooling movement and typically involves a classroom teacher and a para-professional working in the same physical space with one class of children (Friend & Cook, 2010). Both co-teaching and team teaching have implications and potential benefits for those working in FLS's and those wanting to enhance the power of teacher collaboration, space and a student centred pedagogy.

2.3.1 Co-teaching

Co-teaching occurs when two or more teachers share responsibility for a group of students, usually within one workspace, through a shared approach that includes the pooling of resources and joint accountability (Friend & Cook, 2010). One of the two teachers' is typically a general education teacher with the second teacher a registered special education teacher. Co-teaching can be traced to the early 1960's when special education students were first 'included' in mainstream classes (Friend & Cook, 2010; Walther-Thomas, 1997; Warger & Aldinger, 1986). By the 1990's emerging research evidenced benefits for special needs students in inclusive classrooms together with teachers reporting professional growth and an improved sense of collegiality (Friend & Cook, 2010; Walther-Thomas, 1997; Villa, Thousand & Nevin, 2013). While co-teaching was originally a response to children with special

needs the legislative changes in the US in relation to minority groups and those with English as a second language further enhanced the appeal of a co-teaching as a response to meet needs (Villa et al, 2013; Walsh, 1992). Co-teaching in USA continues in the inclusive school movement with increasing numbers of classes having co-teachers as the number of students with 'special needs' has increased over time.

Specific co-teaching strategies have evolved and subsequently been identified as beneficial to meet diverse student needs. A range of co-teaching strategies are now common in inclusive schools including alternate teaching, station teaching, parallel teaching, one teach, one observe, one teach one assist, team teaching, complementary and supportive co-teaching (Friend & Cook, 2010; Villa, Thousand & Nevin, 2008). Co-teaching strategies require teachers understand and agree to mutually developed goals, a shared belief in co-teaching, a belief in the importance of engaging in the roles of teacher *and* learner, distributed functions theory of leadership and a co-operative process (Friend & Cook, 2010; Villa, Thousand & Nevin, 2008). These strategies provide opportunity for teachers to plan their co-teaching strategically to meet student needs rather than simply working in the same space and teaching independently. While these strategies were developed with inclusive education in mind the same strategies are of benefit in a contemporary FLS.

2.3.2 Benefits of co-teaching

Children with disabilities, language delays, emotional risks and those who have English as a second language all benefit from co-teaching (Conderman, 2011; Hang & Rabren, 2009; McDuffie, Mastropieri & Scruggs, 2009; Villa, Thousand & Nevin, 2013; Wilson & Michaels, 2006). These benefits are derived from the more personalised and differentiated teaching afforded by the provision of a co-teacher, the ability to group students according to need and collective problem solving. Additionally, students benefit from multiple perspectives on the curriculum via several teachers assisting with teaching and supporting learning (Conderman, 2011). Gains have also

been identified for students who do not have special needs when in a co-teaching environment with improvements in student social interactions (Villa, Thousand & Nevin, 2013; Welch, 2000). Co-teachers report a reduction in referrals for intensive support, less disruptive behaviour in class and less referrals for negative behaviour (Schwab Learning, 2003). Children are also able to observe authentic collaboration modelled by their teachers, enhancing their own skills and having positive impact on their social, emotional and learning skills (Villa, Thousand & Nevin, 2006). Teachers identify a range of benefits when co-teaching including an increased sense of agency, efficacy and well-being, enhanced skills and problem solving ability and a reduction in feelings of isolation (Schwab Learning, 2003; Villa, Thousand & Nevin, 2013). When teachers work in a co-teaching relationship there is an increased likelihood of using research informed practice (Duke, Showers & Imber, 1980; Hourcade & Bauwens, 2002; Miller, Valasky & Molloy, 1998; Skrtic, 1997). Teachers are able to identify significant benefits for themselves and students when teaching in an environment enabled by a co-teaching relationship.

2.3.3 Team teaching

George and Alexander (1993) argue team teaching has its origins in the American Middle school movement of 1963. The approach consisted of a structure of five to six teachers assigned to 75-150 students in a, 'school within a school'; known as a 'Team'. Team teaching also became popular in the 1960's and 70's within the progressive schooling movement and open plan classrooms. However, the team teaching experienced in the open plan movement and the team teaching in the Middle School Movement were quite different. Team teaching in Middle Schools does not require teachers to teach in the same physical space at the same time. It is more typical for teachers in this environment to have their own classroom and to 'team' with four or five other teachers being collectively responsible from an administrative perspective for a large group of children. Team teaching, as referred to in contemporary literature, most commonly reflects this middle school approach.

Team teaching in the open plan classroom was an intentional paradigm shift away from the industrial model of the teacher directed authoritarian classroom (Alterator & Deed, 2013). In this context, team teaching represented two or more teachers, (more often in primary schools) planning, teaching and working together in the same space with the equivalent of two or more classrooms of children. Team teaching of this nature all but disappeared in the mid 1980's in New Zealand along with the open schooling movement although a very small smattering of schools can be found globally continuing with this approach. Team teaching, as evidenced in the open plan era, is the approach most consistent with that which is emerging in FLS's.

2.3.4 Benefits of team teaching

Students learning in a team teaching environment gain the benefit of multiple perspectives on the curriculum and the opportunity to observe the dynamics of a range of teachers (Buckley, 2000). Teachers are able to maximise their own strengths and minimise weaknesses; learning from colleagues in a supportive and collaborative environment. The opportunity to plan co-operatively assists team teachers to gain a broader overview of the curriculum making connections for students and reducing the silo effect of subject disciplines (Buckley, 2000). Team teachers have opportunities to support colleagues with problem solving, utilising the knowledge , skills and experience in the team and like co-teaching, are able to model collaborative skills for their students. The Centre for Educational Research and Innovation argues team teaching provides an appropriate structure for professional learning communities via collaborative analysis of pedagogy thus, enabling teachers to improve practice on an ongoing basis (OECD, 2013). Team teaching presents a positive alternative to traditional classroom teaching and in particular to the silo curriculum effect evident in more traditional schools.

2.3.5 Limitations of Co-teaching and Team teaching

The limitations of co-teaching and team teaching are sufficiently similar to be considered together as co-teaching.

Teachers identify a range of limitations when working in a deprivatised space and the challenges created by misconceptions about the role and functions of co-teaching (Murawski & Swanson, 2001; Nair, 2014). A level of trust is necessary for co-teaching to be effective, the time taken to build such trust can be a stress for teachers as the collaborative relationship develops (Conderman, 2011; Fullan, 2007; Osbourne, 2013; Sergiovanni, 2005; Tannock, 2009). Discordance between teachers also hinders the effectiveness of co-teaching, adding stress to the workplace (Friend & Cook, 2010; Jang, 2006). Teachers can feel a loss of autonomy and decreased ability to be flexible and responsive to the teachable moment and even a sense of insecurity as their previously private practice and space become public (York-Barr, Ghore and Sommers, 2007; University of Kansas, 2014). Co-teachers working in the same physical space require additional 'conversation' time with their colleagues to arrange planning, assessment, organise administrative requirements and develop pedagogical frameworks adding time pressure for some (Friend & Cook, 2010; Jang, 2006; Roth, Masciotra, & Boyd; 1999; Ploessl, Rock, Schoenfeld, & Blanks, 2010).

A lack of adequate release or non-contact time limits teachers' ability to adequately meet student needs and limits quality professional conversations with colleagues in co-teaching environments (Friend & Cook, 2010; Jang, 2006). Teachers who have a differing view point or teaching approach to their co-teaching colleagues have the potential to be ostracised (Colwill & Boyd, 2008; Gunn & King, 2003; Hargreaves & Dawe, 1990; Johnson, 2003). Co-teaching can also lead to a more complex problem for the school where teams develop their own culture and beliefs and can potentially cause factions within the wider school (Johnson, 2003). Inadequacy or non-provision of quality professional learning (pre-service and in-service) to support the transition to and effective working in a co-teaching environment has been identified as a major limitation for teachers (Buckley, 2000; Cuban, 2004; Friend & Cook 2010; Hattie,

2015; Villa, Thousand & Nevin, 2013). These limitations have the potential to significantly constrain the potential of co-teaching in a FLS and may result in negative experiences for teachers, staff, children and whānau. While there is evidence of the benefit to students in a FLS with co-teaching this evidence represents a relatively small body of research comparative to other factors influencing student-learning outcomes (Blackmore, Bateman, Loughlin, O'Mara, & Aranda, 2011; Friend, Cook, Hurley-Chamberlain, & Shamberger, 2010; Hattie, 2009). Additionally, further studies indicate the overall impact of co-teaching as moderate with gains dependent on the relationship between the teachers (Hattie, 2009; Murawski & Swanson, 2001).

2.4 Flexible Learning Spaces

Physical environments make a difference to children's learning. Warm, well ventilated, acoustically treated spaces with provision for individual, small and larger group learning can improve outcomes (Higgins, Hall, Wall, Woolner & McCaughey, 2005; Tanner, 2015, Woolner, 2010). Within a large FLS, evidence suggests the lack of withdrawal or breakout rooms may negatively impact on some children and staff (Department of Education, 1977; Cameron & Robinson, 1986). Flexible learning spaces provide students options about interactions with teachers, others, their learning, the outdoors, and technology (Alterator & Deed, 2013; Department of Education Victoria, 2008, Horne Martin, 2002; Ministry of Education, 2014; Nair, 2014). When compared to a traditional 66 m² rectangular classroom a well designed FLS affords students and teachers a far more effective and enabling learning environment (Alterator & Deed, 2013; Fisher, 2005; Nair, 2014; OECD, 2013). Flexible learning spaces have the potential to support student self regulation and well-being, providing teachers with opportunity to work collaboratively in a student centred environment.

2.4.1 Historical context

Traditional classrooms are a product of a post war expansion phase designed to meet the significant increasing demands for education for the masses. The bulk of New Zealand classrooms were built in the 1960's-1970's era and reflected the design of the post war design brief. They were designed and built in an era recognised for a teacher centred approach with the main teaching strategy being whole class direct instruction (Dovey & Fisher, 2014). These environments were designed to have the teacher at the front of the room controlling the environment, children in rows facing the front with their attention focused on the teacher, text books or work and not on other distractions such as the outdoors or peers. This was a era of discipline, teacher control and authority, standardisation (classes in primary schools were even called "Standard 1, 2," etc.) and adherence to authority with the risk of corporal punishment for offenders. Schools and classrooms were designed to ensure conformity and control. This is the legacy schools in the 2000's face despite the rapid advances in education and pedagogy and the know impact learning environments play in enabling learning (Dovey & Fisher, 2014; Snehi, 2011).

The Ministry of Education is cognisant of the need to design and facilitate the construction of learning environments with the potential to fulfil the vision of the New Zealand Curriculum of 2007 and meet contemporary teaching and learning needs. New schools and learning environments are designed to enable pedagogies and innovative approaches which meet the needs of 21st century learners rather than the early to mid 20th century (Ministry of Education, 2015c). Unfortunately the rationale for these spaces is not effectively communicated through the Ministry's current website with the focus of the site being that of buildings rather than learning (Ministry of Education, 2014). The Ministry of Education are currently encouraging Boards of Trustees and principals to build Innovative Learning Environments (ILE's) and within these creating FLS's to facilitate the teaching and learning each school and community desire for their learners. This process toward creating 21st century schools for the children of today and the future is a positive and necessary step,

however currently communications from the Ministry are confusing and leave individual schools and Boards unsure about the rationale and drivers for FLS's. Specifically, schools are left with the question what do flexible learning spaces mean for teacher practices and interactions and how do teachers work most effectively in these spaces?

2.4.2 Flexible Learning Spaces

Innovative Learning Environments (ILE's), which were previously called Modern Learning Environments (MLE's), contain what the Ministry of Education (2014) describe as Flexible Learning Spaces (FLS's). These FLS's are essentially large spaces which can be reconfigured to meet learning needs and teaching modes and can be re-purposed with mobile walls (Parnell & Procter, 2011). Schools are required to design any new buildings using the "Innovative Learning Environment assessment tool" to create FLS's (Ministry of Education, 2015c). In addition to meeting requirements of insulation, heating, acoustics, sustainability and lighting these spaces are designed to allow a range of learning spaces for individuals, small and large groups. These spaces will range in size, be technologically enabling and will contain breakout spaces (potentially in areas that have been traditionally used as corridors or walkways in the case of re-purposing space). Ideally these FLS's are not the domain of a single teacher but rather shared collaboratively with two or more teachers (Ministry of Education, 2015c; Shank, 2005).

Flexible learning spaces provide a range of opportunities for teachers' and students including the ability to group learners across 'classes' according to need regardless of the size of a group. That is, teachers are not limited to creating learning experiences individually for a class of 20-30 learners. The FLS allows teachers to consider the needs of two or more 'class' groups and facilitate learning using the combined expertise of the teaching team and the affordance of the FLS itself (Nair, 2014). Flexible spaces facilitate the provision of needs based 'workshops' where students can be directed or select to attend workshops to meet their personalised learning needs. Using purposeful design and layout, FLS's facilitate and enable a wide range of

teaching styles including direct teaching, inquiry, experiential and guided teaching (Fisher, 2005; Nair, 2014; Nair & Randall; OECD, 2012). These spaces are also designed to enable effective pedagogy providing students access to and space for the use of digital tools on an ongoing basis rather than using these tools in pre-designated 'labs' for specific curriculum disciplines (Ministry of Education, 2007). Effective pedagogy enacted in a FLS will see student learning needs met through personalised, student centred learning connected to the world and experiences of the learner (OECD, 2013). Flexible learning spaces encourage a learning focused environment where the social nature of learning is acknowledged and the learner is central to decision.

Flexible learning spaces de-privatise the teaching and learning environment providing opportunity for teacher collaboration and professional growth. Teachers in a FLS (or earlier in open plan spaces) are able to engage in quality conversations and reflection about their professional practice in a supportive and authentic learning environment on a moment by moment basis (Nieto, 2003; Sergiovanni, 1992). These de privatised spaces can enhance the reflective practice of teachers leading to supportive analysis from colleagues and the emergence of more collaborative and inclusive cultures (Campbell, Saltmarsh, Chapman & Drew, 2013). Conversely, without a planned process to transition and collaborate in a FLS, many of these benefits may be lost to teachers. There is a risk the physical design of some FLS's will encourage teachers to revert to traditional teaching methods, especially if there is not a shared belief and understanding of co-teaching and student centred learning. As history shows, spaces that are designed with sliding walls and a layout of traditional classrooms and a 'shared space' in-between, are very easily reconfigured back to traditional classrooms (Cameron & Robinson, 1986; Dovey & Fisher, 2014; Woolner, 2010). To mitigate this risk there is a need for a deliberate and strategic process to support teachers' transition to and work in a FLS (Hattie, 2015; Woolner, 2010). This process includes professional learning to assist teachers and support staff to understand how to work effectively in a FLS including understanding student centred learning,

effective pedagogy, co-teaching and effective use of flexible learning spaces (Campbell et.al, 2013).

2.5 Professional learning and professional development

Such is the potential impact of physical space and allocation of resources to support learning the physical environment is often described as the third teacher (Fraser, 2000; Zane, 2015). For this 'third teacher' to have a positive impact, teachers require understanding of the possibilities afforded in flexible spaces. It is critical teachers have professional learning and development (PLD) opportunities to use purpose built facilities to their full potential (Alterator & Deed, 2013; Cameron & Robinson, 1986; Department of Education, 1977; Hattie, 2015; Higgins et al, 2005). Additionally, teachers are likely to need to engage in PLD to support a transition to a more student centred approach to teaching and learning (OECD, 2009). Such professional learning would assist staff with understanding not only how to best use the space but also how to identify alternate pedagogies, teaching strategies, learning modes and activities then utilising space to facilitate these (Fisher, 2005). Without adequate professional development and sufficient understanding the potential benefits of space, teachers may fail to take advantage of the physical environment or the third teacher and in doing so limit learning opportunities for students. Furthermore, teachers are more likely to emphasis structures, systems and routines to manage large numbers of children in a flexible space than to reorient their practice to student centred learning without adequate and ongoing PLD (OECD, 2009).

Teachers and leaders have identified the critical role of pre-service and in-service professional learning to assist staff to transition effectively into FLS's (Alterator & Deed, 2013; Buckley, 2000; Cameron & Robinson, 1986; Cuban, 2004; Department of Education, 1977; Department of Education and Early Childhood Development, 2008; Villa, Thousand & Nevin, 2013). Teachers working in a FLS require skills in

collaborative practice, an understanding of a student centred, constructivist approach to learning and a knowledge of how to enable lifelong learning through self regulation in addition to the general requirements of a registered teacher. Evidence suggests such provision was not afforded to teachers in the open school era and remains a challenge to the present day (Department of Education, 1977; Cameron & Robinson, 1986; Hattie, 2015; Troen & Boles, 2012). Evident from the review of open plan education of the last century was a recurring message regarding the inadequacy of PLD opportunities prior to moving into an open plan unit, together with a lack of ongoing in-service professional learning.

While it is acknowledged PLD can occur incidentally, it is important to understand the affordances of effective professional learning for teachers especially when engaged in a considerable paradigm shift (Timperley, Wilson, Barrar & Fung, 2007). Effective and enabling professional learning opportunities for teachers can make a significant difference to teacher practice and student outcomes (Goe, 2013; Robinson, Hohepa & Lloyd, 2009). Importantly, where teachers initiate their own PLD improvement in teaching practice exceeds the outcomes achieved when PLD is provided to or mandated for teachers (OECD, 2009). Evidence supports professional learning occurring over an extended period of time, engaging external expertise with teachers, challenging problematic discourse, providing opportunity for professional collaboration and reflection, ensuring content is in alignment with policy trends and school priorities and having in school leaders actively leading or involved in the professional learning (Goe, 2013; Timperley, et al., 2007). Pre-service and in-service professional learning, particularly self initiated PLD, is of considerable importance to those transitioning to a FLS given the lack of any specific training in teacher education programmes regarding flexible learning spaces and the collaborative skills required of teachers.

For teacher practice to change, teachers need multiple opportunities to experiment with alternative approaches to teaching in a safe and supportive environment. Co-

teaching environments require a culture of professionalism, support, accountability together with rigorous processes and systems to support teacher growth and development (Troen & Boles, 2012). Through effective professional learning, both pre-service and in-service, teachers develop a shared understanding of agreed practices, process, structures, management tools and strategies required to enable students to learn in a safe, supportive yet challenging environment (Buckley, 2000; Hattie, 2009; OECD, 2013; Villa, Thousand & Nevin, 2013). Teachers in the past, as in the present day, require quality PLD both pre service and in service, if they are to collaborate and co-teach effectively in a student centred FLS (Hattie, 2015).

2.6 Leadership and learning environments

There is a growing interest and awareness of the potential of teachers to learn and collaborate with one another on a minute by minute basis in the learning environment where teaching and learning are occurring (Hattie, 2013; Sergiovanni, 1992; Spillane, Healey, Parise & Kenny, 2011). Furthermore, it is a lack of genuine and timely collaboration that is identified as limiting teacher potential and subsequently student learning outcomes (Elmore, 2004; Levin & Fullan, 2009). Leaders, and in particular middle leaders have the opportunity to maximise not only their own influence but also the combined collective intelligence, skill and ability in the workplace in a FLS. Leaders play an important role in helping teachers to understand problems, challenges and new approaches to teaching and learning (Ministry of Education, 2008; Robinson, Hohepa & Lloyd, 2009; Sergiovanni, 2005). The challenge for leaders involved in the school renewal project in Canterbury is complex and significant as teachers transition from autonomous practice in traditional classrooms to co-teaching in a FLS. Principals play a critical role in the establishment of a learning environment and work place, establishing structures, systems, resourcing and space to facilitate the desired outcomes (Robinson, Hohepa & Lloyd, 2009). One of the key roles of New Zealand principals is leading change (Ministry of Education, 2008). Leading such change will require principals to

understand key strategies and theories to support effective and lasting change through quality teacher collaboration and co-teaching. Additionally, leaders play an important role in establishing and communicating the rationale for student centred learning in a FLS.

Team leaders and other senior leaders who have the dual responsibility of teaching and leading also play an important role in change management and a culture of continuous improvement. Team leaders in New Zealand schools potentially have a complex role in a FLS with the increased complexity of leading staff while co-teaching with them on a daily basis (Troen & Boles, 2012). Most professional learning in schools is for teachers to improve their skills, knowledge, understandings and competencies. Little is done to develop these same attributes in leaders, especially for teacher leaders who lead and work in teams (Spillane, Healey, Parise, & Kenny, 2011). Professional learning opportunities for middle management including team leaders, deputy and assistant principals was absent in the open plan era (Cameron & Robinson, 1986; Department of Education, 1977). Given the dual role teacher leaders play in leading and working in a FLS, the lack of specific and relevant leadership PLD opportunities has significant implications with some teachers expressing an increased sense of vulnerability and a lack of autonomy when working in a FLS (York-Barr, Ghore and Sommerness , 2007). These teachers may now face the prospect of working in the same physical space as their team leader, DP or AP. Team and other leaders working in FLS will need effective PLD to lead and collaborate in this new environment.

2.7 Support, Systems and resources

Successful change processes require alignment of resources, and PLD together with leadership and participation by leaders (Robinson, Hohepa & Lloyd, 2009). Teachers require a variety of supports, systems and structures to access effective PLD and engage in a meaningful change process, they then require ongoing provision of

support to implement and embed change. Robinson, et.al, (2009) identify a range of leadership dimensions high-performing schools implement including the selection and development of smart tools, resourcing strategically, and leadership provision of, and participation in, teacher learning and development. Transition to flexible learning spaces requires teachers access a range of smart tools to support co-teaching and self regulated learning. Resourcing includes timely and effective PLD, physical teaching resources, time allocation aligned to goal expectations and the recruitment of staff who will support the goals of the organisation (Robinson, et.al, 2009). The access to such tools will require specific resourcing (time or finance) and PLD to up-skill staff. Leaders will require knowledge of the resourcing requirements to support the transition to co-teaching in a FLS, the tools required and the accompanying PLD to support staff.

This literature review considers six key areas in relation to FLS's and co-teaching; teacher collaboration, co and team teaching, the learning environments, the open education movement, flexible learning spaces, supporting systems and leadership. Each have a critical role in developing an understanding about how we might create effective co-teaching relationships in a FLS. These six factors indicate the complex change process required for teachers to transition to effective co-teaching in a FLS. Literature supports the critical role of teacher collaboration together with the potential to enhance teacher collaboration through co-teaching. The transition to co-teaching in a FLS was complex in the open plan era and remains a significant paradigm shift for some teachers in the present day. Sufficient evidence and recommendations from the open plan era exist to provide cautionary warnings of the risks of transitioning teachers to a FLS without adequate support. Opportunity exists for teachers, leaders and all stakeholders to learn from the lessons of the past to ensure a smooth transition into contemporary flexible learning spaces and co-teaching in student centred learning environments.

3 CHAPTER THREE: RESEARCH METHODOLOGY

This chapter begins with an overview of educational research followed by an outline and justification of the research methodology used in this study. An explanation of the interpretive approach is followed by an overview of the mixed methods approach and a summary of the strengths and limitations of both quantitative and qualitative research. The methods of data collection and analysis are described together with details of participant selection and their settings. The chapter concludes with a discussion of validity and ethical considerations.

3.1 An overview of educational research

With a focus on people, organisations and interactions and interest beyond the confines of classrooms, educational research sits within the broad category of social science research (Mutch, 2013). Rather than being limited to teaching and learning, educational research explores more general topics including historical studies, policy and the interactions between stakeholders involved in education. Creswell (2002) describes educational research as a process of identifying a problem, reviewing literature, collecting and analysing data, forming some conclusions and communicating the findings and conclusions to participants in the educational community. Educational research has significant value to the wider educational community by exploring ways of improving practice and investigating the implications of educational policy, practice and innovations. Research provides opportunity to add to, and explore gaps in knowledge, verify earlier findings together with adding different perspectives potentially providing opportunities to empower marginalised groups and provide a more balanced view of education (Creswell, 2002).

3.1.1 Research Paradigm

This study adopted an interpretive mixed method approach to investigate the experiences, reflections, actions and recommendations of teachers and leaders who have been engaged in co-teaching in FLS's for two or more years. The methodology

enabled the collection and analysis of a wide range of quantitative and qualitative data in support of the research goals.

3.1.2 Interpretive approach

An interpretive approach places value on human experience in an attempt to understand and interpret the risks and opportunities, in this case the risks and opportunities of co-teaching. The interpretive approach examines the role of individuals, their interactions with others, and the space and resourcing provided to enable collaborative practice. Understanding the lived experiences of teachers and leaders provides insights into how teaching relationships are formed (Snape & Spencer, 2003). In order to understand the subjective world of the participants, the researcher needs to spend time in their environment and where necessary, modify data collection methods taking a flexible approach (Tolich & Davidson, 2003).

Positivists deem this flexibility a limitation with a deficiency of precision deviating from a predetermined process and creating variables that impact on validity and reliability (Harrison, 2010). Interpretivists conversely, consider this flexibility and reflexivity to participants and the setting essential to develop understanding and assist with gathering meaningful data. Reflexivity can be built into the design from the outset with the inclusion of open ended questions and the flexibility to add or modify questions as the research process is underway (Edwards, 2010).

This research necessitates participants create judgements regarding a range of variables in their work environment, together with the resources that have or have not been provided to support their transition to, and ongoing work in a co-teaching environment. The judgements therefore are subjective and potentially could come under scrutiny of critics who argue such subjectivity negatively impacts on validity and reliability, rendering the resultant data unreliable and potentially flawed. In the case of this research, the collection of data from a broad range of schools, from both teachers and leaders and involving participants from a number of regions in New Zealand as well as Australia, has assisted with enhancing reliability and validity of

data. Both the number of participants in the study and the range of contexts have assisted with the development of themes derived from the responses of participants in the study.

3.1.3 Quantitative Research

The purpose of quantitative research is to test hypotheses, examine cause and effect and trends (Johnson & Christensen, 2008). Quantitative research is defined as a process of justifying phenomena by gathering numerical data which is then analysed employing mathematical methods (Aliaga & Gundersen, 2005). Quantitative research is characterised by linear attributes, measurement and statistical analysis, also seen by some to be more factual and scientific (Stake, 2010). More specifically, quantitative research is distinguished from other forms of research by the use of numbers to represent findings (Drew, Hardman & Hosp, 2008). Systematic approaches are employed with researchers moving through stages from defining the question, the population for study, the method of data collection, identifying variables, collecting data, and then analysis followed by interpretations and conclusions (Harrison, 2010). Some aspects of quantitative research will benefit this research, as numerical data, particularly descriptive statistics, will assist in developing an understanding of participants, their settings and experiences.

3.1.4 Qualitative Research

Qualitative research can be described as an inquiry project (Denzin & Lincoln, 2011). The researcher sets out with a question or theory and makes inquiry. Yin (2011, p. 7-8) provides a useful framework of features; “Studying the meaning of people’s lives under real world conditions; Representing the views and perspectives of the people in a study; Covering the contextual conditions within which people live; Contributing insights into existing or emerging concepts that might help to explain human social behaviour; and Striving to use multiple sources of evidence rather than relying on a single source alone.” A more succinct explanation is provided by Stake (2010) asserting qualitative research places an emphasis on human perception and understanding. Qualitative research attempts to delve into the world of the

participants by examining *their* reality (Mutch, 2013). It is through delving into the lived world of participants, and their experiences as teachers or leaders in a co-teaching environments that this study seeks to make meaning of co-teaching and provide some guidance and support for others transitioning to co-teaching in a FLS. In summary, qualitative research can be described as a deeply human experience bringing together experiences, observations, investigations and then interpretations.

3.2 Research Strategy: Mixed methods, survey and interviews

3.2.1 Mixed methods

A mixed methods approach allows the researcher to utilise the strengths of both qualitative and quantitative methodology providing a more complete analysis for the study (Green, Caracelli, & Graham, 1989; Tashakkori & Teddlie, 1998). Mixed methods allows researchers to place prominence on the lived experience of the participants and the importance of these when analysing data and developing an understanding of their own study (Cohen et al., 2000). Lived experience are of significant importance in this study as the researcher seeks to understand the experiences of teachers or leaders who had 'lived' in a co-teaching environment for two or more years. A mixed method approach allows the researcher to make connections between individuals, groups, their environments and the systems, structures and strategies which have enabled their emerging culture and learning environments (Snape & Spencer, 2003). Surveys followed by interviews provides an opportunity for the researcher to investigate further to understand the experience of participants by revisiting questions and gaining additional information to gain insights (Tolich & Davidson, 2003). The mixed methods approach used in this research places significant emphasis on the qualitative paradigm with quantitative approach utilised to enhance data collation and provide a clear picture of the experience, gender, location and preferences of the participants (Mutch, 2013).

3.3 Data collection

Survey and interview methodology were used to collect both quantitative and qualitative data from teachers and principals. The study used the data to identify and describe the key components of an effective co-teaching relationship and environment. Data reflects the experience teachers have in co-teaching relationships, their experience teaching and any specific model or strategies used when co-teaching. Participants were asked to identify enablers and barriers to their co-teaching experience. Leaders were asked to identify their experience in leading a co-teaching environment, together with the strategies, resources and professional support required to promote co-teaching. Leaders were also asked to specifically identify enablers and barriers to effective co-teaching in a FLS.

The research investigated the experiences of 28 teachers and 16 leaders (four of the 16 leaders were interviewed but did not complete the survey) from a total of 17 schools who have been involved in co-teaching in a FLS for two or more years in both Australia and New Zealand with data collected from April through to July 2015. Participants were invited to complete an online survey regarding their experiences as a co-teacher or a leader in a school where co-teaching is occurring (Appendices A & B). The researcher contacted the schools in question and first gained permission from the principals to undertake the research and to determine if the school had a co-teaching environment. As permission was received, the Board of Trustees were contacted and permission sought for the research to proceed. Following this, the researcher contacted teachers and sought their participation. All groups (BOT, principals and teachers) were provided with an information form and a consent form (Appendices E-H).

Once consent was obtained, participants received a link to the online survey and were requested to complete the survey within a given time frame. The pilot of the survey included feedback ensuring questions were clear, unambiguous and could be reframed if necessary (Mutch, 2013). The Google form utilised for the survey automatically collated data as entered by participants, providing feedback to the researcher regarding the percentage of participants completing the survey. The survey was divided into sections to assist with subsequent analysis. The first section gathered quantitative data relating to tenure, gender, geographic location, co-teaching experience, and the physical space participants worked in. The subsequent sections investigated the co-teaching team, professional learning, release time, systems, resourcing, interpersonal relationships, leadership and perceptions of enablers and barriers to effective co-teaching. The survey was utilised to access data from a broad range of participants locally, nationally and internationally. The combination of quantitative and qualitative questions in the survey and the range of respondents provided a strong data base for the researcher to work with. The mixed method approach provided a suitable database for the researcher to subsequently identify themes for further analysis (Cohen, Manion & Morrison, 2000).

Semi-structured interviews with nine principals and teachers commenced at the same time as surveys were being completed. Interviewing allowed the researcher to develop additional insights and build knowledge through open questions and generative dialogue regarding the research subject (Bishop & Glynn, 1999). Interviews enabled the researcher to develop insights into the complexity of matters under discussion and provided an opportunity to explore areas that other methods did not facilitate (Wellington, 2000). Individual interviews were used for the majority of cases although in one situation two teachers chose to be interviewed together. The interviews were conducted on the school campus or at locations suitable for the participants to feel comfortable and confidential. Where necessary, some participants were re-interviewed to clarify responses and to gain additional information. Subject matter may be contentious for participants in interviews, to

mitigate this Mutch (2013), suggests a brief introduction to set the scene and establish a relationship prior to the formal questions mitigated any concerns. The positioning of the researcher as both a researcher and educator with an interest in co-teaching and FLS's, together with rapport built in pre-interview relationships ensured all participants felt at ease in interviews and allowed a quick transition into questions of considerable depth (Mutch, 2013).

Participants were able to engage in quality and meaningful dialogue as the interview progressed and views were exchanged and discussed. The interview dialogue was representative of what Kvale describes, "Inter view, an interchange of views between two persons conversing about a theme of mutual interest." (1996, p. 2). In the case of this research, the theme of co-teaching and FLS's is of significant academic and professional interest to teachers and leaders in Canterbury. Bogdan and Biklen (2007) suggest emerging data from the interviews may vary initially, however as more participants are interviewed the cumulative data evidenced themes and connection. Variable responses and experiences in the case of this study were consistent with Bogdan and Biklen's claim, however, when more participants were interviewed, common themes became apparent. The quality of information and data obtained during the interview process has significantly assisted with the research findings.

3.4 Data analysis

Surveys were analysed by first separating the quantitative and qualitative data sections. The quantitative data in the survey was then represented in graphs and tables providing concise and pertinent information about the participants and their settings. The quantitative data in the survey was numerical, geographical and objective, enabling precise and succinct analysis and representation. The surveys also produced a significant volume of qualitative data to analyse. The qualitative survey data from individual participants was collated into a single document with

responses organised into the relevant sections and questions. Interviews were recorded with the consent of participants using Audio Note in Word on the researcher's laptop and subsequently transcribed by the researcher. In two cases the analysis revealed the need for subsequent interviews and follow up questions.

The data was analysed using the process suggested by Mutch of, "Browse, highlight, code, group and label, develop themes or categories, check for consistency and resonance, select examples, report findings." (2013, p. 124). To synthesize the data a thematic approach was used for both the surveys and the interviews (Spencer, Ritchie & O'Connor, 2003). Deriving themes directly from the data rather than from the theories of other researchers, allows categories and themes emerging from the responses of participants to be created (Gall, Gall & Borg, 2007). The process of data collection and collation and subsequent analysis and theming requires the researcher to suspend judgement and preconceived ideas, allowing themes to emerge from the data (Cohen, Manion & Morrison, 2000). Comparative analysis of the three different data sets (surveys from teachers, surveys from principals, and interview data) enabled the researcher to cross check data and emerging themes.

3.5 Participants and settings

Thirteen schools were contacted initially and invited to be part of the study. Subsequent to this, four additional schools responded to a nationwide email inviting schools to express an interest in participation. The final selection was a purposive sample based on the experience and history of co-teaching and an agreement regarding the definition of co-teaching as provided in the information sheet and the introduction to the survey. Purposive sampling was appropriate in this research as the participants required experience in the field of co-teaching of not less than two years and agreement regarding the definition of co-teaching was necessary. Cohen, Manion and Morrison (2000) argue purposive sampling enables the researcher to select participants who have significant knowledge of the field of study with experiences that will be of benefit to the aims of the research. Towards that end

some requests for participation were declined as the respondents were teaching in a way that was not consistent with the definition of co-teaching used for this research. The sample group details are described in table 1.

Table 1: Participant information															
School	New Zealand / Australia?	School visited Y-N?	Area: A, Contributing: C, Full Primary F, Intermediate: I	Decile	Rural or Urban	Roll	Purpose Built or retro fit	# of children per FLS	# of teachers per FLS	# of year groups in each FLS	# years experience collaborative teaching	Interview Leader	Interview Teacher	Survey Leader	Survey Teacher
1	A	Y	C	Low	U	600	Retro	150	6-8	2	10+	1	0		5
2	A	Y	C	High	U	450	PB	150	4-6	6	4	2	1		1
3	NZ	Y	F	10	R	222	Retro	60	2-3	2	4			1	2
4	NZ	Y	I	7	U	289	Retro	90	3	2	3+		2	1	5
5	NZ	Y	F	10	U	668	PB	60-90	2-3	2	3+				3
6	NZ	N	A	2	R	158	PB	100	4	2-5	2+				6
7	NZ	Y	F	3	U	487	Retro	110	4	2	5+			2	
8	NZ	N	F	10	R	343	Retro	50	2	2	2	1		1	1
9	NZ	Y	F	10	U	333	PB	90	3-4	2	2			1	
10	NZ	Y	F	9	R	217	Retro	60	2-3	2	3			1	2
11	NZ	Y	C	10	U	577	PB	60-90	2-4	2	3			1	1
12	NZ	Y	F	10	U	170	PB	90	3-4	2	3	1		2	
13	NZ	Y	F	9	U	458	PB	90	3-4	2	4+			1	
14	NZ	N	F	8	U	75	Retro	30	2	2+	2			1	
15	NZ	N	F	9	R	485	Retro	90-120	3-4	2	2+				1
16	NZ	Y	C	3	U	366	Retro	60	2	2	2				1
17	NZ	Y	C	10	U	165	PB	60	2	2+	3+	1			
Total participants:												6	3	12	28

Interviews were conducted both in New Zealand and Australia with the majority conducted in the participants schools, one was conducted off site at a cafe and two over the telephone. Interviews typically took 30-45 minutes to complete. The researcher visited 13 of the 17 schools.

All participants were fully registered teachers who were working in or leading a physical environment with at least one other teacher. The researchers definition for acceptance for participation in the study was communicated to potential participants as:

Two or more teachers working together collaboratively to deliver instruction to a heterogeneous group of students in a shared instructional space. In this environment teachers blend their expertise, share materials and develop common instructional goals.

In the New Zealand context there is a relatively brief history of co-teaching as evidenced by the number of years participants have been working in this environment in relation to their number of years as educators. The rapid population growth and subsequent demand for new schools in Auckland, Otago, Hamilton and most recently the events in Canterbury, has seen the creation of FLS's from which the majority of participants hail. Existing retro-fitted environments are more evenly spread across the country. In Australia, one of the two schools is purpose built, the other a retrofit. The retrofit Australian school has been operating as a co-teaching environment for over 20 years. The new Australian school has been built in stages over five years with each new 'hub' built for up to 150 students. Each new hub has been modified in response to the experience gained from working in the existing spaces.

My position as the researcher in this context is not totally objective. I am the principal of a school merged due to the Canterbury earthquakes and subsequent school re organisation process. The school I lead is currently being totally rebuilt as a new purpose built FLS school. The new school comprises six learning studios for up to 110 children and between four and five teachers together with two existing learning studios for 55 children and three teachers in each. While undertaking this research I have been leading the paradigm shift in my school to co-teaching in flexible spaces. The purpose of my own research and study over the last three years was to ensure the creation of the best possible learning environment for Waitākiri Primary School children with an educative purpose of improved learning outcomes, improved self regulation and enhanced hauora for our learners (Waitākiri Primary School, 2015). It was in the interests of myself as a leader and our school, a genuine inquiry was undertaken to rigorously investigate co-teaching in a FLS and to learn from others then subsequently making the content and findings accessible for interested parties. Understanding the risks and opportunities has the potential to improve learning, self regulation for children, staff and community for both Waitākiri Primary School and others in Aotearoa, New Zealand.

3.6 Validity

Traditionally validity is a term more typically associated with quantitative research, however, progressively the concept of validity is seen as important in qualitative research together with credibility and trustworthiness (Lincoln, Lynham, Guba, 2011). Validity signifies the degree a research project precisely represents the concept the researcher is seeking to identify (Mutch, 2013; Thorndike, 1997). Qualitative data gathering and analysis is more subjective than quantitative research involving the researcher in an interpretive processes allowing a component of prejudice reflective of the experiential history of the researcher (Creswell, 2010; Mutch, 2013). The qualitative researcher must be cognisant of this reality when preparing questions, conducting interviews, coding and analysing data. The use of careful processes during

all stages of the research reduces the risk of prejudice and bias impacting the research findings. These processes include submitting proposed research questions and methodology to supervisors, undertaking trial surveys, and triangulating data. Primarily the researcher is seeking to identify if the questions posed represents the concept the researcher is investigating (Tolich & Davidson, 2003).

Triangulation also enhances credibility of a study. In the case of this research, data was received from teachers, principals and others in leadership roles in contexts from around New Zealand and Australia. A significant number of the schools participating in the study evidence the success of their teaching and children's learning through nationally standardised tests, National Standards and Education Review Office reports. The sample set included schools with a history of only two years through to schools with a co-teaching approach exceeding 20 years. These reliable sources and contexts heighten the trustworthiness of the data, and in turn enhance credibility of the study (Lichtman, 2010). Triangulation processes used in this study improve both the credibility and the validity of the findings.

3.7 Ethical considerations

As Mutch (2013) identifies, the researcher in a study holds a powerful position from the moment they enter into a research project. By simply asking questions and engaging with participants, the researcher has the potential to coerce participants, therefore, balance of trust, and power can be an issue. This power imbalance could be the case in relation to this study, especially where many of the participants indicated they were not experts in the field of co-teaching, rather indicating they were 'Giving it a go.' To mitigate these risks, Christians (2011) suggests four guidelines:

- Informed consent; participants must be informed about the research process, content and consequences. Such consent must be given on the basis of full

disclosure of pertinent information. Participation in a research study must also be voluntary and this is to be expressed in the information provided to potential participants.

- Deception: full transparency is required with research free of active deception.
- Privacy and confidentiality: safeguards are to be put in place to maximise participant confidentiality, both their identity and location.
- Accuracy: data and representation of the data must be accurate.

These guidelines ensure the basic principles of research; maximum benefit with minimal risk. Researchers must consider these guidelines when preparing for research, when designing research methods and in collating, interpreting and reporting on data.

In this study, participation in both the survey and interviews was voluntary with participants receiving full disclosure through an information and then consent form (Appendices C-F). Furthermore, the Board of Trustees of each school received information and provided consent for staff participation (Appendices G & H). Participants were advised the purpose of the study, how the study would be reported, the position and context for the researcher, and the voluntary participation (Mutch, 2013). No surveys were completed or interviews conducted without signed consent received from the relevant Board of Trustees and the participant. The move to FLS's has been contentious through the media and within educational circles. For this reason it is imperative participants feel safe offering their views and experiences without fear of identification and potential negative consequences. The gathering, storage and reporting processes will ensure information gathered in the project will remain confidential. All information related to participants is held secure in a password protected storage device and will be destroyed after five years.

4 CHAPTER FOUR: FINDINGS

The Key components of an effective collaborative teaching and learning environment

Survey and interview findings are presented in this chapter. The interviews were analysed first for categories and then emerging themes within and across participants' responses. Eight key components emerged and are used as a vehicle to communicate the findings in this study. For effective co-teaching relationships to occur in a flexible learning space all eight components must be considered. Additionally, these components overlap one another and impact on one another.

The findings revealed principals and teachers identified a wide range of factors which are necessary when creating an effective co-teaching environment in a FLS. These factors have been drawn together in eight key components as illustrated below.

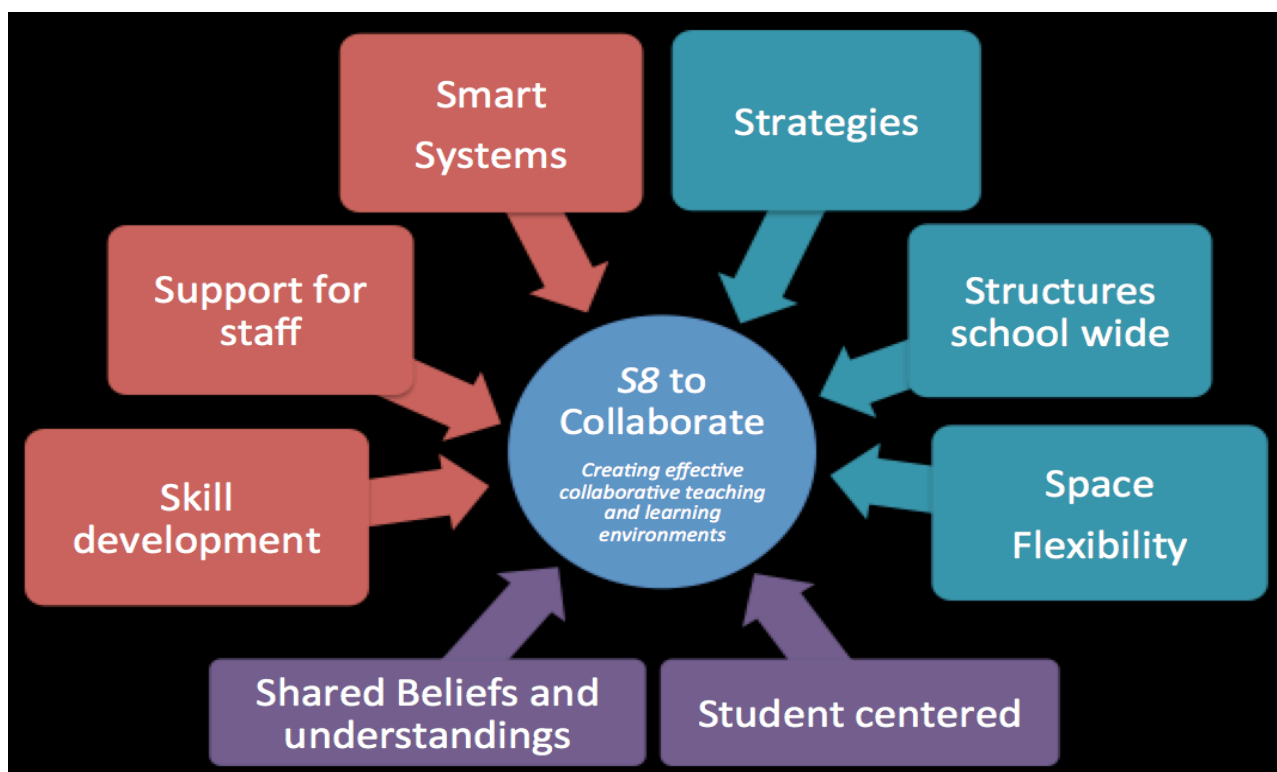
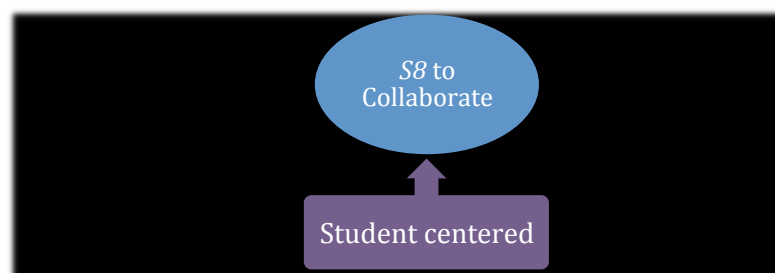


Fig. 2. S8 to Collaborate: Shared beliefs and student centeredness underpinned all subsequent components. Skill, Support and Systems were the most prominent followed by the remaining three components.

The illustration uses colour to represent the relative important of each component. Two components (in purple), student centred and shared beliefs and understanding, were considered foundational for any school or group of teachers transitioning to co-teaching in a FLS and underpinned all subsequent components. These were followed by three components (in red) of collaboration skill development (the ability, skills, and dispositions to collaborate and work effectively for a common purpose), the support required for staff to transition effectively into a FLS and the use of smart systems (hard and soft) to support teaching and learning in a FLS. Identified (in teal), but less prominent were the use of specific co-teaching strategies, implementation of new school wide structures to support co-teaching and finally developing understanding of how to use flexible space effectively to support quality teaching and learning. Furthermore, a number of the components have more implication for leaders such as shared beliefs and understanding, school wide structures, support for staff and skill development. The findings are discussed using these eight components.



4.1 Student centred learning / Learners at the centre

A student centred approach was a foundational rationale for teachers and leaders for creating effective co-teaching relationships. Students were identified as central:

Students are truly at the forefront. Everyone is focussed on what makes a difference for the students not what is easier for the teachers.

A shared vision that explicitly puts the learner at the centre, the space also needs to be student centred.

Student centeredness was reflected in the responses received by participants with students having voice and choice about the learning experiences they participated in:

Kids opt into workshops, staff assess together, it is more about developing learners that are leading their own learning rather than reliant on teacher instruction to gain new learning.

We run a very open teaching and learning style where the students have a lot of choice and we as teachers get alongside them and help them to learn by starting where they are.

Interview questions and conversations clearly indicate teachers and leaders consider a student centred approach to be a central tenant in the creation of an effective co-teaching and learning environment.

It is based around the principle of having students take ownership of their learning. We run a very open teaching and learning style where the students have a lot of choice and we as teachers get alongside them and help them to learn by starting where they are.

‘Student centeredness,’ was a key factor for all of the schools participating in the survey. Characteristics of the student centred approach included small, needs or interest based groups and workshops where children could opt into workshops and in other cases where teachers could establish ‘workshops’ to respond to an emerging need. Teachers were responding ‘just in time’ to learning needs based on feedback from students rather than teaching a pre-determine and prescribed lesson and objective. In the majority of cases, students were progressively encouraged and enabled to construct and utilise their own timetables, meaningful goal setting, success criteria for learning experiences and then monitoring their own progress through digital portfolios. Teachers attempted to link learning to the lives of learners through the use of real life learning contexts, such as ‘passions days’ or ‘20%’ time. Both passion days and 20% time (one day a week) are times dedicated to fully student led inquiry based on the needs and interests of learners. Teachers argue co-teaching allows improved support for this student centred approach.

This enables us to give the kids access to wide range of teachers who possess different skills and different specialties, in this way they can access a broad range of styles and some really awesome cross curricular learning.

Student led learning conferences (rather than parent-teacher interviews) were also evident in the majority of participant schools. These conferences were identified as a natural outworking of a student led environment with students leading discussion about their strengths, weaknesses and next steps in relation to numeracy, literacy, inquiry, well-being and key competencies. This reflection from one teacher succinctly summarises the approach practiced by the majority of participating schools:

The teacher helps the child gather all of their work in each area of the curriculum and then the child will run the interview with their parent. The teacher is there to assist if they need any help or get stuck along the way. The child and parent have a lot of discussions along the way and the child asks for feedback from their parents. The parents will also help set the goal for the next term

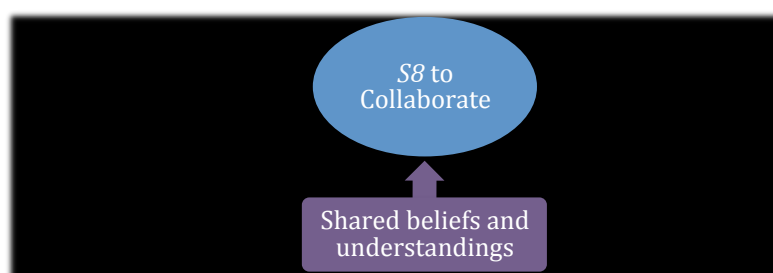
Children are leading the conferences supported by one of us (home teacher generally) with other teachers available to talk.

The role of the teacher in these student centred environments is to personalise learning and support the student to be self regulating, developing the skills and attributes of a lifelong learner. Day to day practices, interactions and systems scaffold students to greater levels of self regulation with teachers developing an ever increasing knowledge of the learner. Part of the strategy most schools employed was to have multi level classrooms enabling relationship development with students over extended timeframes further enhancing teachers knowledge of the learner. Evident, was a determination to create an environment where the teacher role is to meet the diverse needs of learners and to support student leading their learning:

Students work better/differently with different people/teachers, students have the opportunity to learn from a range of teachers offering a range of teaching and learning styles. It is based around the principle of having students take ownership of their learning.

Leaders identified the importance of having a student voice and agency in the environment with students asked for feedback on a wide range of issues especially regarding the effectiveness of the co-teaching and co-teachers. In one case students even participate in the interview process for potential teachers and make

recommendations to the principal and Board. In other schools placing students at the centre extends to students having access to every part of the school including the staffroom at all times. The most common rationale for co-teaching in FLS's given by participants was placing students at the centre.



4.2 Shared beliefs and understandings

All participants spoke of the importance of having shared values, beliefs and understandings to create an effective and positive co-teaching working relationship.

Make sure you have established a strong link to your school vision and values. Make sure that is communicated to teachers effectively so that they see how the co-teaching will fit the vision and values.

Shared vision/ goals/expectations within each team are designed and decided upon at the earliest possible time.

Teachers and leaders identified the need for shared beliefs and the 'why' (*we believe in the power of collaboration*), the 'how' (*we will collaborate through co-teaching*) and the 'what' (*we will implement these specific co-teaching strategies at these times for these purposes*). A number of teachers articulated the belief or 'why factor' for their school:

We have defined Transformational environment, use of digital tools and collaboration as important emerging affordances.

Collaboration is a core value of the school philosophy. We believe it is best for teachers' professional learning and development and best for children's learning. It gives flexibility in the learning styles for children.

We believe collaboration is best for teachers professional learning and development and best for children's learning.

From beliefs schools then described the principle ('how') of how co-teaching occurs:

We have a Power of 3 philosophy. 3 classes = about 90-100 kids. 3 teachers have a shared office for all the staff in the team including teacher aides. No desks in the classroom. Teacher resources are housed in the teacher office. We have individual classes that we as classroom teachers report on and are the contact point for parents or caregivers but when teaching all teachers look after all students.

The importance of progressing beliefs to principles and practices was identified by a number of teachers and leaders who suggested using MATES (Mutually Agreed Team Expectations), goals and expectations to ensure the beliefs of the school are translated into practices ('what factor'):

Take the time before-hand to discuss what the school vision looks like within the co-teaching space. i.e. birds eye view drawing of class showing what effective teaching and learning looks like.

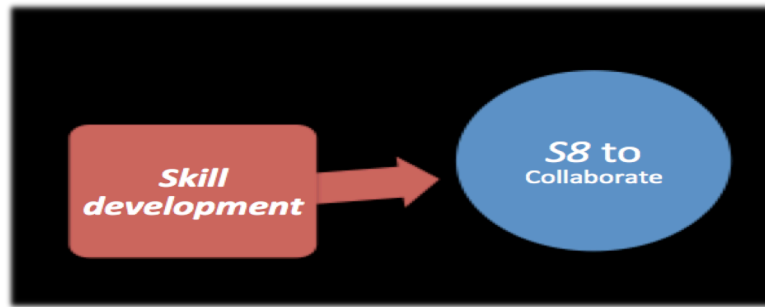
A number of participants warn against starting by just putting, "holes in walls," or moving into a new space and then expecting teachers to share beliefs about the place of collaboration, co-teaching and of learners at the centre.

Not having a shared vision and transparent strategic goals and trying to simply transplant single cell teaching into a shared space is a real risk.

Transitioning into co-teaching in a FLS requires the development of shared beliefs and understandings which underpin principles and practice. Failure to address beliefs is a considerable risk to all who are working in the learning environment.

Supplementary statements by participants suggest conflict is more likely when shared beliefs are not articulated. Beliefs must be translated into explicit goals, expectations or MATES to ensure the beliefs are enacted. One leaders' comment effectively summarises the place and importance of shared values and beliefs:

Working with a shared vision and pedagogy leads to an effective environment and culture.



4.3 Skill Development

Teachers are trained in a wide range of skills and strategies to implement the New Zealand Curriculum. Other than some recently emerging 'MLP' courses little is evident in the way of professional learning opportunities related to FLS's or co-teaching either through teacher training programmes or professional learning and development providers. A range of skills are identified as critical by respondents to work effectively in a FLS, including:

- Communication skills
- Collaborative teamwork skills and strategies
- Digital skills
- Inter-personal skills
- Leadership skills when working and leading in a FLS

While many of these skills may apply to working in a traditional learning space, the place of each is identified as even more critical in a FLS.

4.3.1 Communication Skills

Effective collaboration in a FLS requires teachers to work in shared physical spaces, where decision making which was previously an individual responsibility now a collective activity. Teachers acknowledge this transition requires effective communication:

Communication and collaboration is the key. Spend time creating clear communication systems for recording student learning, developing clear communication practices between staff is also essential.

Talk, Talk, Talk. Communication is the most important thing.

To achieve effective communication teachers and leaders agree a respectful and supportive environment is required where teachers feel safe to take risks but also communicate effectively and as agreed with one another:

Create a positive and respectful environment where everyone's opinion is heard and discussed in an open and honest, productive way.

In a FLS situations arise that teachers may not have experienced in their traditional classroom, hence challenging conversations may be necessary requiring teachers communicate effectively:

Developing clear communication practices between staff is also essential...because...you will need to have some tricky conversations.

Communicating effectively when engaged in the complex role of co-teaching is identified as a critical factor to teachers and leaders.

Be aware that it will take lots of effort, communication, application of new ideas and reflective practices to establish an effective team. This system requires very critical and honest reflections therefore trusting relationships must be developed within this team.

Communication is required for so many acts teachers previously undertook independently, this places a significant demand on teachers to communicate small details and spend considerable time discussing, negotiating, compromising, listening, questioning and coming to a collective agreement:

Agree really early on about basic class room management things. Getting these things sorted early will help reduce stress and also help children to feel secure that all the teachers are on the same page about stuff. For example; Agree on your attention getting signal. Agree on your expectations about how tidy the room should be before children leave for break or at the end of the day. Agree on who is going to be responsible for register, data entry, communicating with parents, how children's work will be marked, what will happen for children who finish their work early, etc etc. Get those things sorted so that communication about workload is clear and resentment does not develop.

Such is the intensity of the co-teaching relationship one participant commented:

Be honest with your co-teacher and think of it like a marriage!

In considering next steps for PLD teachers and leaders identify communication skills as necessary to enhance collaboration, including skills in:

Critical conversations, effective communication and mechanism which allow difficult conversations to take place.

While teachers identified communication as important, leaders were even more unanimous regarding the importance of effective communication. When asked to identify critical skills required for co-teaching, communication was identified by the majority of leaders:

A professional school culture where people communicate effectively with each other. Open and honest communication is required for successful co-teaching relationships to develop.

4.3.2 Digital skills

Given 96.3% of teachers working in a FLS use Google docs or Apps or some other similar online tool, there is a significant need for teachers working in a FLS to be confident and competent when using digital devices. Having the skill to enter, manipulate and retrieve data and learning information is important for teachers and support staff working in the FLS. The lack of skills in using digital tools impacts on colleagues within the FLS, the students themselves and in many cases parents and whānau especially when reporting is ongoing. Participants identify the importance of having the appropriate skills:

You need a structure, allocation of responsibility, expectations of what each person contributes and how each other works. e.g. where planning folders are put, how to put in anecdotal assessment and how often etc. Online shared planning and documentation is an important factor.

Collaborative report writing, shared student led conferences and co-teaching all require teachers have the necessary digital skills to collaborate effectively.

4.3.3 Leadership skills when working in and leading a FLS

Leadership in a FLS have the opportunity to work closely with co-teachers; mentoring and supporting them as they work in a shared space. This is especially evident in spaces containing three or more teachers, where one of those teachers may be the team leader. Teachers generally responded positively to working alongside their team leader as a co-teacher. Connection to senior leadership was valued:

Having a team leader and then using the agenda from the team leader meeting (when holding our own team meetings) means we feel more connected to the leadership team and the other two blocks in our school. Having the team leaders stops the, "Us and them," mentality.

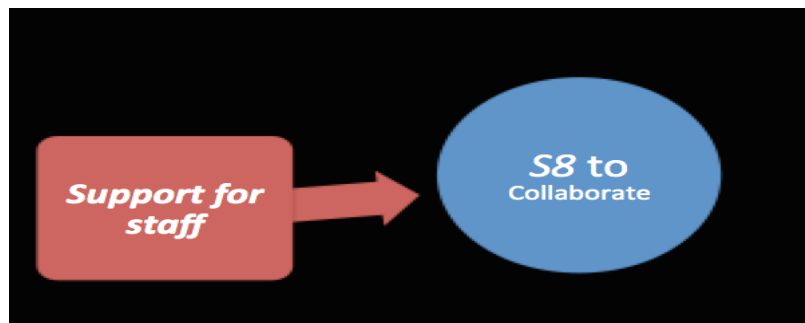
Leaders themselves report positively on the experience of collaborating with and leading teachers in a shared space:

Collaborative to me means sharing everything. I work very hard not to become the dominant leader in the pod. Everything needs leadership and when we meet as a team I am happy to step up to this. However, I want my pod colleagues and all of my team to grow and learn from each other. I don't think this would be as real if I was the, "leader" all of the time.

However, having a team leader working in a FLS as part of the team was not always viewed in a positive way:

In one space, there is a more dominant teacher (who is also 'Team Coach') who has taken on a more assertive role which is not always conducive to effective relationships.

Overall teachers and leaders responded positively to the experience of leadership in a FLS. The change in dynamics, where the leader works in the same physical space as the team they lead, is generally viewed in a positive light. Teachers have a stronger sense of connection to senior leadership or management together with a sense of support and connection for the team to the vision of the school and the goals of collaboration.



4.4 Support for Staff

The transition to co-teaching in a FLS is considered by teachers and leaders to be a significant paradigm shift requiring effective and ongoing support. Teachers and leaders consider teachers' mindsets and attitudes as the starting point for the transition into a FLS and co-teaching relationship. PLD, leadership, support staff and appropriate resourcing are also identified as necessary support strategies.

4.4.1 Mindsets

Attitudes of teachers, their ability or desire to be a learner and their responsiveness to different approaches to teaching and learning were described by many as 'mindset'. Any support a teacher received is considered secondary to the teachers mindset through the potential change process:

I think the teacher's attitude is more important than the professional learning. If you have a positive, open to possibilities attitude and you're prepared to give things a go that will get you a long way. All the professional learning in the world won't make up for that.

Do you have a fixed mindset or a growth one? There lies the key to success.

Teachers moving from a traditional classroom to a FLS and co-teaching consider the shift to be complex and significant. Their roles, interactions and ways of working change significantly.

This is a different, challenging but so rewarding way to teach and it takes time. Don't be precious about your past teaching practices. Be aware that it will take lots of effort, communication, application of new ideas and reflective practices to establish an effective team. Realise that you will be challenged beyond anything you have ever experienced.

Conversely many participants, (teachers and leaders), identified “Teachers unwilling to change,” as having a detrimental impact on the relationship and environment. One leader developed specific strategies to mitigate this risk and challenge teachers:

I would ask new staff "How do you cope with change, how do you cope with being challenged?"

Participants in the survey highlight co-teaching in a student centred FLS necessitates a new paradigm for teachers and this requires a growth mindset, a positive attitude to change, risk taking and mistake making.

4.4.2 Teachers’ professional learning

Professional development is a great way to create the co-teaching relationship because it helps you to analyse yourself, your teaching style and how you can adapt and work with others.

We have done a lot of whole staff development over the last 2 years, and have done a lot of readings around this, especially the difference between co-operation and collaboration.

Quality PLD to support staff transitioning into co-teaching in a FLS was provided to 51.9% of teachers, with only 56% considering they received enough PLD for the transition. The professional learning provided was typically readings, visits to other schools, discussions and either inviting ‘experts’ to speak or attending workshops where experts spoke. Action research and, ‘Teacher as Inquiry,’ projects were initiated within schools to assist with the transition and as a self selected PLD process. The majority of teachers in this study sought ongoing PLD by visiting other schools and used this process to reflect on their own practice. Most participants consider they have learnt many of the required skills, ‘On the job,’ and would have benefitted from more PLD support when moving into a co-teaching role. Where teachers did receive PLD, it assisted the transition into and then work in a FLS, understanding the range of skills necessary, appreciation of, and the rationale behind student centred

teaching and learning in a FLS. Others commented on their improved communication and thinking skills gained through PLD.

All participants recommended quality PLD provision for future schools and teachers including PLD to support:

- Effective pedagogy in a co-teaching, student centred environment
- Understanding what students at the centre means for teaching and learning
- Understanding how to use flexible space effectively
- Communication skills, especially difficult conversation skills
- Collaboration skills including problem solving and negotiation skills
- Interpersonal skills including understanding strengths, limitations, skills of self and others
- The 'why' and 'how' of co-teaching
- Understanding the stages to transition into a FLS
- Understanding growth and fixed mindsets
- Systems to support co-teaching in a FLS
- Skills to utilise technology to support student self regulation

It was recommended the PLD be provided through research projects, teaching as inquiry, external experts, visits to other schools and ongoing facilitated conversations within the school. Leadership were identified as pivotal in the provision of, leading and participation in PLD. The importance of, 'Just in time PLD,' is highlighted:

It has been helpful that we have had various bursts of P/L as we have progressed into co-teaching. There is the beginning stage where you don't know what you don't know, then you need another burst as you begin to try things out, to sort out misconceptions or develop shared understandings, then we benefited from the experts as we grew our understanding and began to focus less on the how, and more on the why.

Teachers acknowledge that while there is a lack of research to support their approach, an ongoing process of reflective evidence based practice is enabling their professional practice:

We did lots of reading initially and then went to observe in other co-teaching schools. After PD we would discuss what we thought and question, and evaluate your own practice and our classroom practice and make changes if needed

While visits to other schools are enabling, teachers and leaders identify a risk of visitors seeing the, 'Bells and whistles,' rather than understanding the rationale, principles and processes used to create effective co-teaching practice in a FLS:

It is important for each school to develop their environment in their own way - what works for one school may not work for another. It depends on your schools philosophy and what they believe in. You can't pick one schools programme up and take it to another school and expect it to work - the development definitely takes time

All participants suggested PLD be made available in the future to teachers transitioning into co-teaching in a FLS. Responses from the majority of participants suggests they are yet to find adequate PLD:

Yes, Where do I find that?!

4.4.3 Principals professional Learning

New Zealand principals transitioning a school or part of a school to co-teaching in a FLS received little or no formal professional learning support or guidance. Australian principals surveyed did receive significant support. Principals were asked "What professional learning or support did you receive for the transition to a collaborative teaching and learning environment?" The responses of New Zealand leaders was consistent:

No designated external PL support. More my own professional reading, visits to schools, leadership team/board discussions etc.

None - my journey to team teaching was self directed and came about from my dissatisfaction with the way my class was running, and a real desire to find a way to work smarter not harder.

None externally. Done lots internally drawing on expertise.

It is evident principals feel pressure from the Ministry of Education to create FLS's rather than traditional classrooms and implement co-teaching rather than traditional

teaching. One participant was critical of the apparent lack of leadership and direction from the Ministry of Education noting the dedicated MLE/ ILE website provided minimal information regarding teaching and learning instead focussing on buildings.

Others sought expertise from PLD providers such as CORE Education. To mitigate the lack of quality PLD provision, principals were proactive about developing the necessary knowledge and skills to lead their schools:

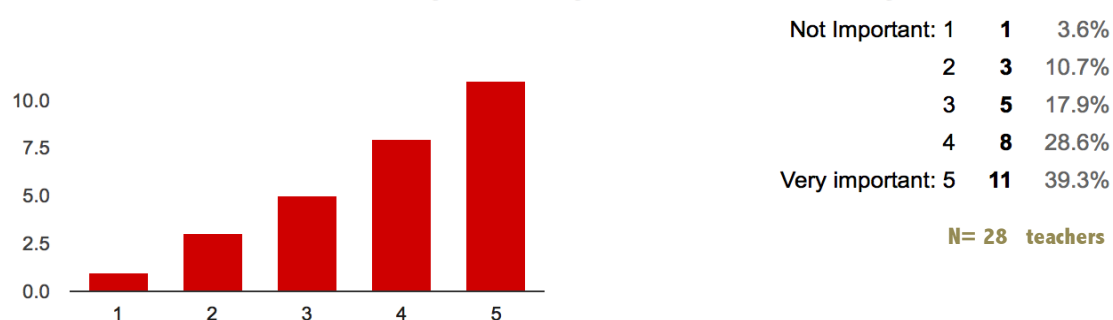
I was deliberate in connecting with leaders that had experience in this area. Nothing was provided by others, just self led.

Visits to schools all over the country, future schooling and e-learning courses and conferences, lots of research and PD around personalising learning, inquiry and self directed learning.

My own professional reading, visits to schools.

Despite the significant change process required, findings indicate PLD for teachers, and principals to be significantly lacking. This lack of PLD is in direct contrast to the importance placed on PLD by teachers transitioning into and working in a co-teaching environment in a FLS with 67.9% of participants rating PLD as ‘important,’ or ‘very important.’:

How important is professional learning in creating an effective co-teaching relationship



4.4.4 Leadership

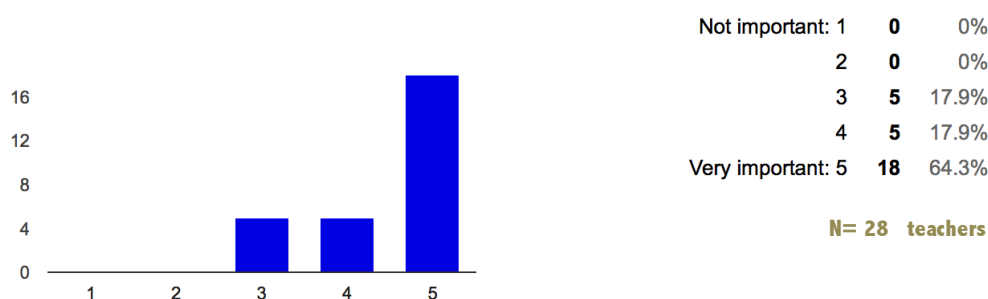
Leadership, especially the principal, play a critical role in enabling, supporting and challenging teachers and support staff. Their attitude toward student centred

learning, co-teaching and FLS's impact on resourcing, appraisal, appointments, team selection, curriculum development, reporting to parents and communication to parents and the community. Teachers feel empowered and enabled when leadership and especially the principal champion the vision for co-teaching in a FLS. Teachers spoke of the importance of leadership to their transition to a FLS:

Having a supportive leader has been incredibly important for me. It has allowed me to grow as a practitioner myself because I trust in what my leadership believes, says and acts upon.

School leadership was rated as very significant to teachers with 82.2% rating school leadership as 'important,' or 'very important.':

How important is school leadership in creating an effective co-teaching relationship ?



Our teams could not function well without the vision of leadership and the importance they place on the co-teaching relationship.

Sufficient resourcing is required to enable teachers and support staff to transition from traditional classrooms to co-teaching in a FLS. Teachers are aware leadership hold the power to enable such a transition:

The leadership needs to value the change and therefore give time to the teachers to develop and consistently reflect on the processes. Also to provide resources and support as change can be difficult for many!

In all cases in this study, the principal, at times with support from the senior leadership team, made decisions about who works, and collaborates with who, and in doing so has a significant impact on teachers each year. Teachers consider

leadership have a responsibility to consider the voice of teachers given the high stakes environment of multiple teachers working together in a single space:

The school leadership team needs to trust the teachers and teams to be flexible and determine what is best for their students. It is also important for leadership to take on the questions and concerns from the teams in regards to staffing, planning etc.

Teachers have an expectation that not only will principals and senior leaders consider teacher voice but that they also model collaboration in their practice:

All of this collaboration needs to be led and modelled from the top down. This is especially important for the students to see and understand.

School leadership (Principal and DP) provide a model of co-leadership in the way they interact with all teachers and learners and with each other as a leadership team.

One participant commented that things, “Fall apart,” when the principal is away for too long. Teachers consider leadership have a key role to play, especially in development of shared beliefs and ownership of the vision:

It (co-teaching in a FLS) needs to be ingrained in the school culture to be effective.

4.4.5 Support Staff

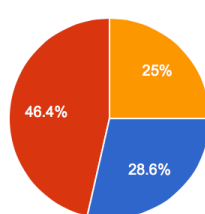
Support staff, especially teacher aids play a different role in the teaching and learning environment of a FLS school, especially those with three or more equivalent classrooms. A transition from traditional classroom to a FLS's and co-teaching can cause stress for all concerned, especially students; teacher aids are often left to support these students and deal with the reality of the changing environment from a student's perspective. While participants were not specifically asked questions about support staff, one respondent provided an enlightening comment regarding the importance of teacher aides:

We like including him (Teacher aide) because in actual fact, he is the only one of us that stays in the class the whole time.

A subsequent interview with two participants revealed the importance they placed on the role of a teacher aide. They considered the teacher aide was in some ways the ‘constant’ in the FLS with teachers out of the space for classroom release time, leadership release, PLD and sick leave. From week to week the teacher aide was consistently in the space supporting learning and students. Teacher aides in a FLS appear to be seen by many as another ‘teacher’ in the space, supporting individual and group learning needs. Their role in supporting teachers’ and student learning was viewed as significant.

4.4.6 Resourcing

Does the provision of or lack of resources impact of the effectiveness of your co-teaching relationship?



Yes	8	28.6%
No	13	46.4%
Other	7	25%

N= 28 teachers

Teachers and support staff transitioning into a FLS require resourcing to enhance the transition process and for ongoing effective collaboration. Only 48% of teacher participants in the survey considered they had adequate release time to meet the demands of co-teaching in a FLS. Classroom releases time appeared to be more contentious in spaces where secondary and primary teachers were collaborating in the same physical space with the secondary teachers receiving more than double the release time of their primary counterparts. One of the challenges co-teachers in a FLS face is the need for more collaborative discussions. This can be a challenge for teachers transitioning from traditional classrooms to a FLS where they have had the freedom of start and finish times. Working collaboratively in a FLS limits that flexibility. The Australian participants in primary schools had significantly more release time of one day per week, compared to an average of between one and three hours per week in New Zealand schools. The lack of resource allocation for release impacts on collaborative planning and meeting time as identified by these responses:

VERY IMPORTANT TO HAVE COLLABORATIVE TIME TO PLAN!

If you can't meet together to discuss anything, plan, catch up on PD or reflect then you can't be on the same page or be providing a consistent program, then the children will suffer and your relationship will suffer as you will need to make extra effort to meet in your own time. And with all the meetings teachers already have this can be very difficult.

To mitigate the lack of release time teachers spoke repeatedly about the importance of a shared workspace for the co-teaching team to facilitate conversations, capture, “Just in time,” information about students and build a collaborative culture in the team:

We have our teaching office - we meet there in the mornings, at lunch, after school - it is a place where we talk and meet all the time. This is where it is important the values match up so staff can trust each other and are flexible towards change. We have regular pre-arranged meetings.

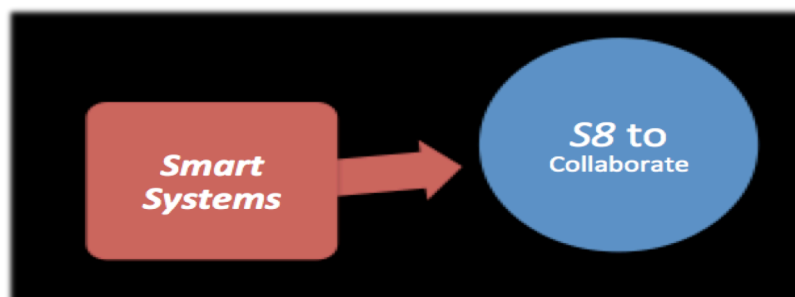
Teachers’ did not consider co-teaching in a FLS made any additional demands on resourcing requirements, in fact the sharing of resources may even mean more effective use of resources and savings to the school. Teachers were also adamant that new, ‘fancy furniture,’ was not a requirement in a FLS:

Sometimes - I think people get hung up on the fact that they need MLE furniture etc.... but the pedagogy and philosophy needs to come first.

Finally, though not a ‘requirement,’ a significant number of teachers commented on the advantages of having 1:1 devices to support the teaching and learning in a FLS.

eLearning has become even more of a 'need' with co-teaching as our students are working so much more collaboratively as well. In the areas of our school where we are not 1:1, this has caused an issue as there are not enough devices.

The two main areas of resource needs identified to support co-teaching in a FLS are funding for release time for collaboration and devices to support teaching and learning.



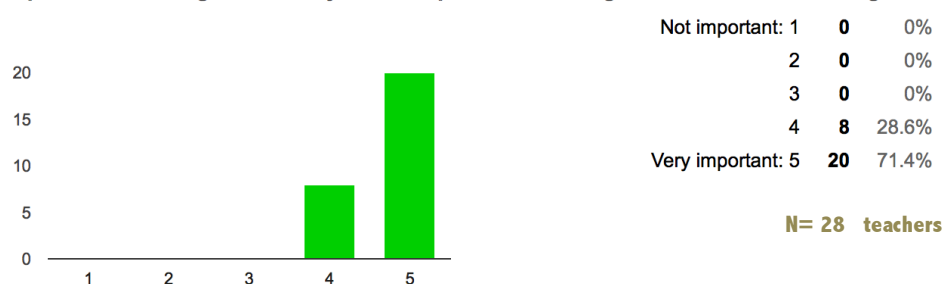
4.5 Smart systems in place

Effective systems and routines are required to enable effective co-teaching in a FLS.

These systems include grouping of students, timetables, resource allocation, the use of technology, and practical systems for the day to day functioning of the FLS.

Systems rated very high in relation to the impact on creating an effective co-teaching relationship:

How important is having effective systems in place in creating an effective co-teaching relationship



4.5.1 Systems for meeting students' needs

A critical component of an effective FLS is the understanding the children are, 'Ours,' not, 'Mine.' Participants stressed the importance of collaborative responsibility for every aspect of each child's learning, self regulation and hauora.

Students are changed around so they work with different adults and students.

Appropriate systems were required to manage this collective responsibility and accountability for the learning, self regulation and hauora of students. In larger spaces of three teachers or more, systems were established to manage administration, planning and assessment requirements for individual students. To

achieve this some schools used a system of home rooms although different schools used different terms including, 'Home room,' 'Whānau group' or 'Guardian group.' Participants responses indicate there is a variation in the importance placed on these groups with one school moving away from the system of home groups over time as teachers, children and families became more comfortable with collective responsibility for learning:

When I first started teaching in a collaborative pod, we really felt the need for home groups. We called these guardian groups. It was actually more for the benefit of the parents as this was all so new to them and we didn't want them to feel as though we wouldn't know their children. As the community has come to trust us and the collaborative model more, we haven't needed this and now do not have this at all.

It was apparent some teachers struggled with the difference between a, 'Home group' and a classroom, creating some tension between the need for a closer relationship with a smaller group of children and the risk of reverting to traditional practice of 'my class'.

We have deliberately steered away from this (home rooms) so that 'ownership' of children is shared.

Re-grouping children according to need, interest or passion requires schools have a range of systems in place to communicate learning expectations and goals and to monitor progress and achievement. Significant systems and processes were required for day to day functioning of the room to minimise stress to students and staff and maximise teaching and learning times:

Systems are very important for the children, otherwise it could be very overwhelming for them. Systems that are discussed, agreed upon and carried out are vital to the collaborative space. For example, where to put the books, what children need to be seen (where and when), negotiation of literacy/maths activities, storage of resources. When everyone knows what is happening, things work really well and precious time is not wasted.

Teachers agree effective systems support student well-being and self regulation:

The students need to know what the expectations are for independent learning and what we want it to look like.

Teachers in this study recommend significant time be allocated to the organisation of effective systems, to improve the effectiveness of the teaching and learning in the environment, furthermore, they suggest once systems are agreed on, they must adhered to by all.

Experience has shown us so far that systems are crucial. These environments are twice as structured as they were when teachers were teaching in isolation. If the systems are not effective then co-teaching cannot happen. Although it seems on the surface that it is seamless, there was a lot of organising, discussing and prioritising that goes on beforehand.

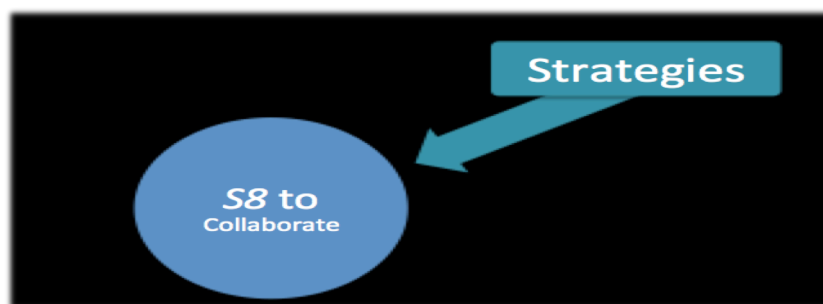
4.5.2 Smart Digital tools

Online planning was a strategy used by 74.1% of participants with Google Docs the most common planning platform. For effective collaboration to occur, teachers need immediate access to up to date information regarding all of the children in their learning studio/community. This also enables a range of teachers to communicate effectively with one another, leadership parents and whānau. Furthermore, teachers identified the use of digital planning gave additional opportunity for student agency and self regulation with planning often shared with children and families. Effective sharing of information ensures all teachers are able to support and challenge learners to achieve the best outcome. Detailed planning is open and transparent, as are success criteria and next steps for learning with 96.3% of participants sharing planning, assessment and anecdotal information with colleagues.

Utilising digital systems allows a shared approach to communications extending as far as report writing with 74% of teachers writing reports collaboratively. This method of report writing is different to both traditional primary school report writing, where one teacher typically writes the report, and intermediate or secondary schooling where reports are written by subject teachers. In this approach teachers 'share' report writing responsibility depending on the child, the relationship to the teacher and the format of report writing. In some cases the final report is simply the

Overall teacher Judgement (OTJ) as progress and achievement comments and grades have been allocated as and when the learning took place rather than a summative report twice a year.

Smart systems are identified as crucial in an effective FLS. The findings indicate each school has been developing their own systems over time, predominately through a trial and error approach. Effective systems reduce stress to students and teachers and assist parents and whānau to understand teaching and learning in a FLS where co-teaching is the norm. Without effective systems teaching and learning time can be wasted and students can receive mixed messages regarding expectations and teachers may miss opportunities to give just in time feedback and assist students with next steps. For systems to be effective teachers need to have clear understandings about the systems and have the necessary skills and attitudes to implement these. Teachers agree considerable time must be set aside to discuss every detail of the day to day functioning of the FLS and the creation of enabling systems to support teaching and learning.



4.6 Strategies understood and enacted

While a number of recognised co-teaching strategies are readily available for teachers, only 41.7% of teachers utilise these on a day to day basis. Of the 41.7% who implemented specific co-teaching strategies, some were very explicit about use:

We use a variety of all teaching strategies throughout the day. It depends on the program being implemented and the number of children in our class at the time. We would mainly use station teaching for literacy, parallel teaching for numeracy and team

teaching for inquiry. We use one teach, one assist in the morning routine or pack up. And when we implemented the new teacher we had one teacher, one observe.

Aligned with intentioned use, a small number of participants had received specific PLD to support the implementation co-teaching:

We use all of the above (one teach: one observe, one teach: one assist, parallel teaching, station teaching, alternate teaching, team teaching) at different times. This is something we had extensive PD on and when we are planning we decide how it will look.

Conversely, other participants indicated a more global and intuitive approach to co-teaching:

*We used a mix of strategies at any given time!
We team teach.*

Further investigation with teachers and leaders indicates the majority of participants in this study are not explicitly utilising specific strategies they can identify with co-teaching other than, 'Workshops' and, 'Needs based guided teaching,' both of these could be described as either station or alternate teaching. Of the five to six commonly known co-teaching strategies the most often utilised by teachers are, 'One (or more) teach: one assist,' and 'Alternate/station teaching.' Some teachers commented that while they started with explicit strategies, over time these evolve:

We acknowledge that all of these (co-teaching strategies) have a place in co-teaching. We try to explicitly state what co-teaching strategies we are using in our planning, but often it evolves organically - especially as relationships develop

In addition to the commonly known co-teaching strategies other strategies have evolved to suit the space and the focus of the team. One school identify the, "Daily 5," as a strategy utilised to manage literacy. Another school describes the type of teaching and learning occurring in the different spaces:

In my team we set up specific classrooms e.g. 4 classrooms Room 1 - teacher room where small group lessons are taught Room 2 - Tuakana Teina Room - working in pairs Room 3 - share space and group room Room 4 - quiet room, individual work

In this case while no specifics were provided regarding the strategy employed it is evident the teachers were utilising station teaching where students were receiving small group instruction and teaching depending on need. Principals identify co-teaching practices are inconsistent across the majority of schools:

Is the implementation of co-teaching consistent across your school?



In summary, the majority of teachers (nearly 60%) use no particular strategies to implement co-teaching rather relying on a more organic process of teachers working together to meet needs. Even among those who do implement specific strategies there is considerable variation from explicit use of a wide range of strategies to a more global and intuitive approach.

4.6.1 Effectiveness of co-teaching

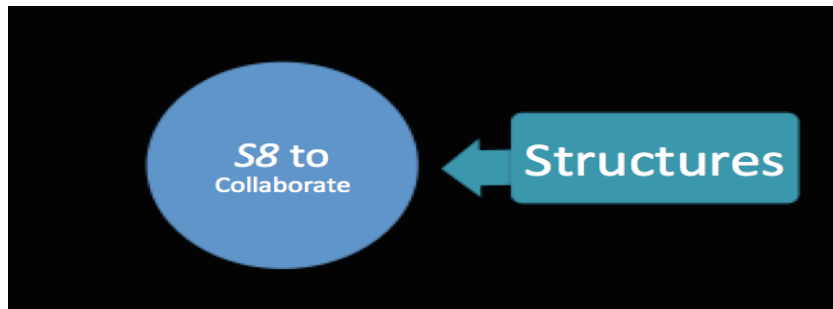
When asked how teachers know if their co-teaching relationship was effective few could articulate any specific indicator as to the effectiveness of co-teaching in a FLS, for example:

We don't really, not formally. More informal conversations and reflections.

Ten participants referred to student goals and their progress toward achieving these as a measure of the effectiveness of their co-teaching, 16 referred to their communications, relationships and reflections and two referred to the happiness of the relationship as a measure of the effectiveness. Of the ten who referred to student goals and progress, a number indicated the effectiveness of their co-teaching relationship was not something they had specifically considered or planned for:

Student results? Compare to previous years when working in different teams? Student engagement? good question!

The findings reveal most teachers in a co-teaching relationship have not specifically considered the effectiveness or impact of their co-teaching.



4.7 Structures and processes established school wide

4.7.1 Employment Process

Leaders modified the employment structures to employ teachers to work in a FLS. A number of factors specific to a FLS required consideration such as the interpersonal skills of the applicant, the needs of the team, the make-up of the existing team and the needs of the students. Revised employment strategies and process include:

- involving the relevant team in the employment process and including their opinion in the final decision
- involving students in the employment process
- requiring applicants come together for a day to work in a collaborative spaces and be observed by the employment committee (which included students)
- observing how applicants interact with other adults and children in a series of challenges and activities
- considering personality profiles by using tools such as the Belbin Team work profile
- allowing the relevant team to have the final decision on the successful applicant

Principals and teachers consider the employment process to be more high stakes in a FLS given the co-teaching, student centred requirements and the de privatised space:

Yes, we need to be incredibly mindful of the "arranged marriage" type of situation that co-teaching demands. Our advertisements for staff clearly articulate that applicants must want to work collaboratively. It has been necessary for us to make a few staff changes to ensure that we have the best combinations of people that we can manage.

This has led to changes in the ways teachers are employed and the expectations schools with FLS's have of their new staff. Leaders identified the need for robust induction processes to assist teachers to transition to the environment. Other than having team members on the interview panel, the most significant change is schools having pre-interviews with all applicants:

We have always needed to consider that new staff will be working in a team and parts of our application and interview process are designed to enable us to gather information about the way the applicants work with others for example shortlisted applicants spend a day at our school with other short listed applicants taking part in some group planning activities and then conducting a short presentation based on some aspect of teaching/learning philosophy. We also encourage students and other teachers to be around during break times to observe how the applicants interact.

Co-teaching has caused principals to reconsider their appointment processes in response to the adult to adult interactions and relationships required to create an effective teaching and learning environment.

4.7.2 Appraisal Process

The practice of co-teaching was varied within schools with only 25% of schools reporting consistency. Despite this inconsistency, 75% of schools included co-teaching in their appraisal. Leaders considered co-teaching and collaboration central to the culture of the school and the underpinning values and beliefs and therefore essential to include in appraisal:

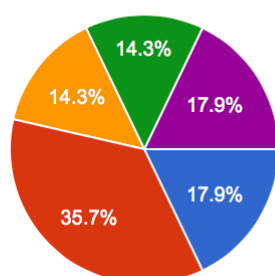
Because it is such an important part of what we believe in and who we are.

Our teachers teach with their colleagues all day every day. It is imperative that their ability to co-teach is an area of appraisal and ongoing development. We need to be aware of their needs as co-teachers, not just as individuals. We need to understand their attitudes, abilities and next steps.

Appraisal criteria included co-teaching ability, interactions, attitudes/mindset and strengths and weaknesses. Two schools had co-created indicators and success criteria for co-teaching and collaboration with their staff and subsequently used these for appraisal.

4.7.3 Team Size

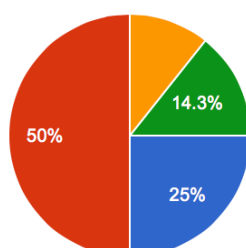
How many teachers are in your co-teaching relationship?



Two	5	17.9%
Three	10	35.7%
Four	4	14.3%
Five	4	14.3%
Six	5	17.9%

N= 28 teachers

What is your preference for the amount of teachers in a co-teaching relationship?



Two	7	25%
Three	14	50%
Four	3	10.7%
Five or more	4	14.3%

N= 28 teachers

Co-teaching relationships of four or more are evident in 46.5% of participant schools, however only 25% identify four or more as their preference. Teams of two or three are preferred by 74% of teachers. The two contributing factors for this preference are the complexity of working with a larger group of teachers and the challenges of getting to know very large groups of children:

It isn't just the amount of teachers but the amount of children...for pastoral care purposes each teacher is responsible for roughly 25 children at our school. However in the MLE environment the reality is, to do your job well, at any one time you need to know how all children tick in your environment.

Within the survey group, teams of three were most common and most preferred. Preference can be attributed to previous experience working with a specific number of co-teachers and the relationships experienced within these teams. Co-teaching teams of two enabled conversations and a smaller number of children to 'know', equally a risk was identified of a dominant person controlling the relationship in a duo. Benefits of teams of three included a more democratic approach to decision making and opportunity for more professional support and skill development through working in a team of three. A number of participants referred to the importance of the 'Power of Three,' although they did not elaborate on the importance of the number three. Others identified the risk of potential conflict when three are in a team, identifying conflicting view points and understandings:

In my opinion the three teacher has often been the most difficult to get running smoothly due to a lot more relationships/differences/opinions/decisions... to work through.

With teams larger than two, formal meeting and discussions time were required to ensure all co-teachers were present and in the loop. In larger teams (three plus) teachers identified the opportunity to utilise the strengths of each team member to meet student needs and the reduced intensity in relationships when working in a larger group. For most teachers, relationships play a more significant role than team size:

I'm going to say 3 but I have at this school worked with up to 7 in a community and it all depends on relationships and shared expectations we have of learning

Equally the curriculum content and related learning experiences had a bearing on preferences:

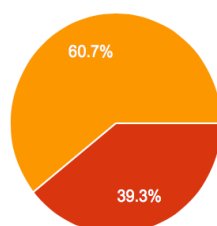
Depends on the activity taking place and what outcomes you want out of it.

What was evident is all participants believed in the power of more than one. Beyond this preference of team size is personal and varies from person to person and school to school depending on experiences and relationships.

4.7.4 Process for selection of the co-teaching team

Determining who will be in each team is more complex, high stakes and contentious in a FLS than in traditional schools. Teachers and leaders agree teachers should have a voice in their placement for the following year, however for 39% of participants it appears teachers do not feel they have had a voice.

Who determined who you would co-teach with?



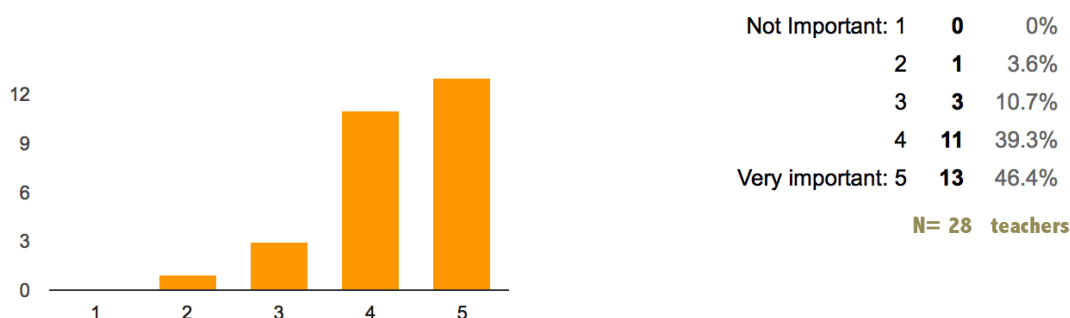
I did	0	0%
The leadership team did	11	39.3%
It was a combination of me and the leadership team	17	60.7%
N= 28 teachers		

The responses to this question indicate a complex interplay between teachers having an opportunity to comment on who they co-teach with and who makes the final decision. Most teachers believed it was the job of leadership, with their overview of the school, to make final decisions about teams with little or no input from staff, others considered teachers should be very involved in the decision making process. This response provides an apt summary of the thinking:

I would have answered yes and no (should teachers have a say who they co-teach with)...yes because it is an absolute fundamental that the people you co-teach with have a similar value set and can get along together, so teachers should be able to have a say in what is a pretty important part of the enjoyment of their job. However I would say no in the sense that some teachers may not be able to see the bigger picture within a school, and just like children, working with your friends is not always the best choice.

Overall 70% of teachers believed principals and senior leadership should make the final decision, 15% believed it should be a combined decision and 15% believed co-teachers should make the decision themselves.

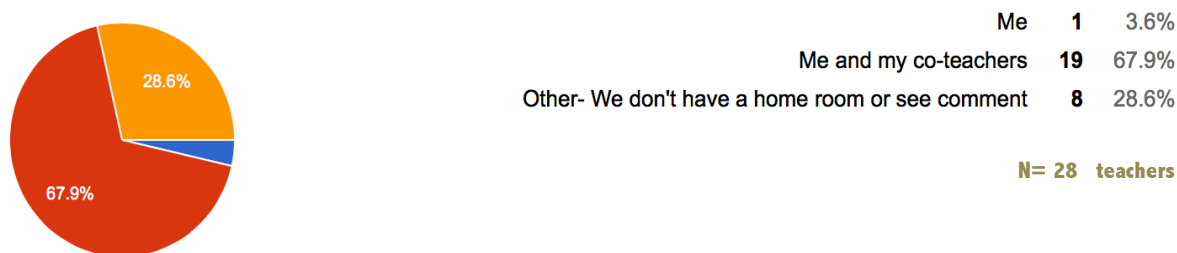
How important is the selection of your co-teaching team in creating an effective co-teaching relationship



This summary illustrates the importance placed on selecting members of the co-teaching team with 87.7% of teachers rating selection of the team as 'important' or 'very important.'

4.7.5 Report writing

Who writes reports for your home room children?



Report writing structures and systems align with the belief of collective responsibility and accountability. Teachers commonly shared report writing responsibility with the teacher holding the most relevant teaching knowledge being the one responsible for writing a specific section of the report:

Depending on who has taught the bulk of the learning. Home room teacher still signs the final report though comments might be initialled to indicate they have come from another teacher.

One school has transitioned away from traditional reporting twice a year to student led reporting through personal blogs:

The students do most of it - they have each created a personal website (online learning portfolio) that they reflect in each week. Our report is a brief note and a link to their portfolio.

The transition to collective responsibility has required a change in how reports are written and information shared:

Have had to change the format of reports this year to a collaborative platform (google doc) so that multiple teachers can access the same document. (They were in Word)

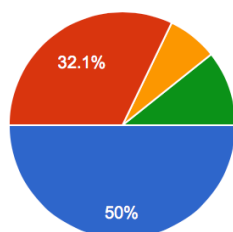
Participants indicated report writing was still an evolving process for many schools shifting to co-teaching.



4.8 Space flexibility

Half of the survey participants were working in a purpose built space with 32.1% working in 'retro fit' spaces.

What type of space are you working in?



New MLE	14	50%
Retro fit space	9	32.1%
Traditional classrooms	2	7.1%
Other	3	10.7%

N= 28 teachers

Teachers commented on the negative impact space had on the effectiveness of co-teaching and children's learning:

Prior to last year we had 18 months in 2 separate spaces which hindered the degree to which we could co-teach effectively

It (a lack of flexible learning spaces) is the largest thing preventing us moving forward .

Our space does not currently have enough division of space to be properly effective.

There needs to be the ability to close off and open up spaces depending on the task being undertaken and teaching method.

Teachers identified the importance of breakout learning areas to enable a wide range of learning needs be met:

Ideally would like to have more quiet breakout areas.

While some were quick to point out that effective co-teaching could happen anywhere; “You can teach a lesson anywhere!! Be creative,” the majority indicated space has a significant impact on the strategies teachers were able to implement and the way children were able to learn.

Without the space we have, we could not operate a programme like we do.

While spaces was identified as an enabler by participants, teachers and leaders were keen to communicate the importance of pedagogy first and space second. Teachers hesitancy to comment on space stemmed from a concern that the provision of space or ‘modern furniture,’ would become more important than effective co-teaching and student centred learning.

Eight key components impact on the effectiveness of co-teaching relationships. While they do not contribute equally, each plays a part in enabling effective co-teaching relationships in a FLS. For co-teaching to occur all participants agreed the environment must be student centred with shared beliefs to support the resultant pedagogy and practices. Regardless of the beliefs, teachers identified the importance of effective systems to maximise learning time and minimise stress for all. While teachers considered quality PLD to be important, the majority of teachers in this study transitioned without adequate PLD sparking a strong recommendation all future teachers transitioning into a FLS have the support of effective and timely PLD. FLS schools have modified structures and processes to support co-teaching, particularly appointment and appraisal processes. While pedagogy is identified as the primary driver for change, flexible spaces are identified as critical enablers for co- teaching in a student centred environment.

5 CHAPTER FIVE: DISCUSSION OF FINDINGS

This chapter links the findings from this study to literature. The findings identified eight key components required to create effective co-teaching relationships. The chapter commences by discussing the role beliefs and mindset play in learning environments followed by a discussion of the eight components using three major themes; Situating learners at the centre, Effective pedagogy in a FLS and Collaborative skills. The chapter concludes by considering the lessons from the open plan era.

The findings are discussed using three overarching themes together with a discussion of the role and place of shared beliefs and mindsets. The three main themes emerging from the findings are; *Situating learners at the centre, Effective pedagogy in a FLS and Collaboration including collaborative / co-teaching*. These are represented in Fig 2 as the building blocks to improving student learning outcomes, hauora and self regulation.

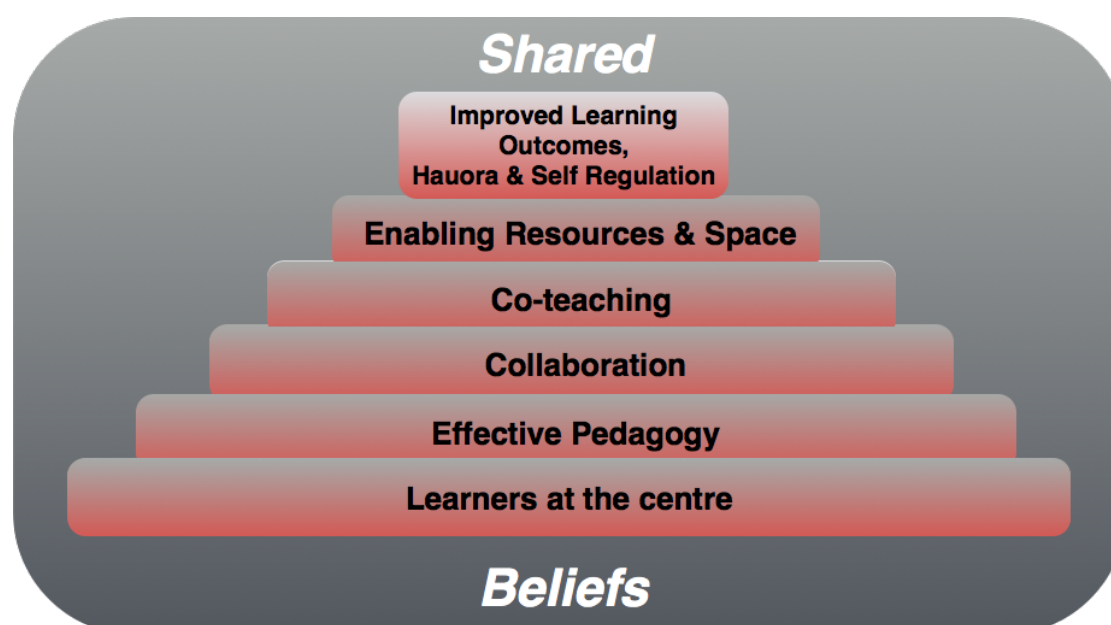


Fig. 2. The building blocks of an effective co-teaching environment.

The eight components of 'S8 to Collaborate' are now discussed using the building blocks illustrated above. Most prominent in the findings were student centred learning (or situating learners at the centre) and shared beliefs. However, shared

beliefs relate to all aspects of the environment, including a belief and understanding in student centred learning, effective pedagogy, the power of collaboration and co-teaching and the place and role of resources (especially ICT and physical space).

5.1 Developing shared beliefs and the influence of mindset

A unexpected finding in this study was the significant impact and influence beliefs and mindset appear to have on the ability of teachers to transition successfully to co-teaching in a student centered FLS and the ongoing impact of these.

Beliefs have a motivational influence and function in affecting teacher behaviour. Teacher beliefs vary from personal to global and act as a framework for their day to day teaching practices, their interactions with children, colleagues and the wider community. While practices may change from time to time, beliefs are generally long term and are more difficult to change and most typically come from the teachers' own experience of schooling (Yero, 2010). For example, teachers' who believe children are not capable of achievement, negatively impact on children's learning (Clarke, 2015; Hattie, 2009; 2015b; Khelm, 2013). Teacher beliefs impact on their view and use of a range of teaching approaches and practices, including for example; technology, specific teaching strategies, the importance and place of the arts or learning through play, and the inclusion of children with special needs in the mainstream classroom. Similarly, when teachers believe open plan (or flexible learning spaces) are counterproductive to teaching and learning, this belief will have an impact on their ability to work in such a space and co-teach in a student centered environment. Leaders warn of the impact teachers mindsets can have on the environment and suggest timely communication may be needed with those who seek to undermine a collaborative approach due to a fixed mindset and pre-determined beliefs.

Teacher participants in this research 'believe' in collaborative teaching and learning and co-teaching in environments with learners at the centre, however for many their beliefs have evolved over time and through the experience of working in these

environments. Changing teacher beliefs is a combination of experience, reflecting on practice, research and testing research against practice (Timperley & Robinson, 2001; Zeuli & Tiezza, 1993). Recommendations from participants in this study suggest leaders will need to continually provide opportunity for beliefs to be challenged while providing support to assist teachers to refine beliefs over time through practical experience, facilitated discussions, ongoing research as well as quality PLD. Teachers spoke often of the importance of being a learner, being prepared to take risks and examine one's own beliefs as indicated by the 'advice' they would offer to teachers transitioning into a FLS:

Be a risk taker, innovate, experiment and be creative. Take risks, have a go, reflect and challenge each other

Remember that while it's important to grow as a professional your main priority is working as a team towards the common goal. Be prepared to leave behind some of your old habits and assumptions. Be open to learning new ways of teaching and learning and enjoy the journey.

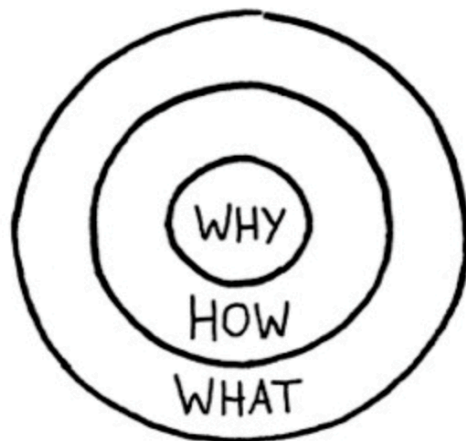
In this research, leaders could clearly articulate a school-wide belief in the importance and place of collaboration in the school, more importantly the belief in the power of collaboration and student centered learning was held by the leader.

In the open plan era one of the factors leading to the ultimate demise of the approach was a lack belief and understanding of 'why' teachers were doing what they were doing and the lack of leadership by principals to support the learning environment (Department of Education, 1977). Teachers and principals in that era had some idea about 'what,' was expected, however they did not understand 'why,' nor 'how,' to work in these environments (Cuban, 2004). Teachers in this research articulated their belief in collaborative teaching and learning and also recognised the importance of their principal and leaders understanding why co-teaching in flexible spaces was essential. Beliefs and an understanding of why a certain approach or practice will be undertaken is central to success, particularly where new innovations are being implemented (Sinek, 2009). Schools who were able to articulate broad beliefs in relation to collaboration enabled the development of supporting principles

and practices to evolve through processes such as teacher as inquiry, action research and spiral of inquiry. These processes allow a range of practices to be tested and refined as schools move into relatively uncharted waters of co-teaching in a FLS. When teachers and leaders spoke of shared beliefs and in particular of leaving old ways behind and adopting 'MLP's,' their beliefs centre around collaboration, student centred learning, a growth mindset and a constructivist curriculum.

The shared belief in co-teaching appeared straightforward on the surface, however discussion reveal the myriad of practices emanating from this belief and teaching strategy. Findings indicate the ways in which teachers implemented co-teaching varied significantly from school to school, and within schools as teams attempted to determine best practice through trial and error. Specifically, schools were asked if they had defined what co-teaching meant for them, the rationale for it, how it was enacted and the impact of co-teaching on systems such as appraisal and appointment procedures. While all respondents were adamant about the importance of co-teaching and their belief in it, less than half could define specific co-teaching strategies used, skills required to co-teach, PLD to support co-teaching or provide evidence co-teaching was improving outcomes for learners. This lack of clarity (especially for schools at the early stages of transition) indicates the power of beliefs in a change process. While teachers and leaders did not necessarily articulate strategies or skills they did 'believe' the actions they were taking had sound basis and hence the details were seen as of less importance. Schools who had more experience in co-teaching were more able to articulate principles and specific strategies derived from their belief and had measures of success for the teaching and learning occurring in the space. Sinek, (2009) refers to the importance of starting with beliefs (why) then exploring principles (how) and finally the product (what) using the 'golden circles' to illustrate this process (Fig 3).

The Golden Circle



© 2013 Simon Sinek, Inc.

What

Every organization on the planet knows WHAT they do. These are products they sell or the services they offer.

How

Some organizations know HOW they do it. These are the things that make them special or set them apart from their competition.

Why

Very few organizations know WHY they do what they do. WHY is not about making money. That's a result. It's a purpose, cause or belief. It's the very reason your organization exists.

Fig. 3. *The Golden Circles* (Sinek, 2013)

Sinek challenges organisations to re-think their approach and work from the centre out rather than the, 'What?' in. Certainly in the case of this research it is evident the open plan era began to be driven from the outside in with the era being buildings and teachers working together in one space rather than the philosophy of student centred constructivist learning. There remains a significant risk in 2016 schools are driven by the, 'What?' not the, 'Why?' as they become exposed to ideas and trends such as MLE or ILE and co-teaching without first understanding why teachers might want to work together in one space taking collective responsibility for teaching and learning.

Leaders and teachers in this study repeatedly identified the importance and impact of mindset and the impact such mindset has on the change process (Clarke, 2015;

Dweck, 2007) . Participants considered colleagues with fixed mindsets less likely to be receptive to new ideas or to having their existing beliefs and practices challenged. In the context of Canterbury there will be many schools transitioning to FLS and co-teaching in the future, many teachers in these schools will have beliefs and views about their own practice, about the role and place of students and about co-teaching. Teachers' entering into this change process with a fixed mindset are more likely to revert to their known practice when faced with the challenges and demands of co-teaching in a student centred FLS. To achieve the necessary change in practice and beliefs, leaders need to clearly articulate the rationale (or 'why' factor) for the new paradigm, then set and communicate clear and unambiguous goals and expectations for teachers in order to gain commitment from teachers (Robinson et. al, 2009). If such goals are realistic, meaningful and related to student achievement, self regulation and well-being with well-defined criteria and are suitably resourced, leaders provide appropriate pathways for teachers to reframe beliefs and improve their practice and collaborative expertise to better meet student needs (Hattie, 2015b; Robinson, et al., 2009, Timperley, 2008). Mindsets play a significant role in the establishment of an effective co-teaching relationship and learning environment.

Examples of specific expectations derived from beliefs in the power of collaboration in the participant schools included expectations for shared planning and moderation of assessment, use of student digital portfolios, co-creation of success criteria, personalised learning plans and portfolios and use of specific co-teaching strategies. Furthermore, to assist with the professional growth and development of beliefs, teachers in several participant schools were required to undertake action research projects to determine the effectiveness and impact of teaching, student centred learning and co-teaching strategies. In most cases leaders involved staff in review processes at the end of each year or the start of the new year to consider the school wide beliefs and values and the resultant principles and practices occurring in the school.

Given the complexity of transitioning to and effectively working in a FLS it is evident beliefs need to be explored, however the examination of beliefs must lead to principles, practices, goals and expectations with support provided for staff to achieve these goals and expectations. Beliefs change slowly through experience, research and reflection. Time must be allocated and structures put in place to allow teachers to revisit their beliefs and those of the school on an ongoing basis.

Timperley et al., (2007) suggest teachers be given opportunities to have their theories of practice and their beliefs engaged and challenged and then have the time to translate their theories into practice. This revisiting process assists with developing consistency school wide and provides opportunity for teachers to consider and refine their evolving practice. The following discussion of the three themes (situating learners at the centre, effective pedagogy in a FLS and collaboration and co-teaching) is undertaken with the understanding teachers and leaders must examine beliefs and mindsets in relation to all of these.

5.2 Situating learners at the centre

Situating students at the centre is fundamental to the creation of an effective co-teaching environment. Teachers in this research identified the importance of creating environments where students have voice, are empowered to become self-regulated learners and learning experiences are designed to be responsive to the needs, interests and lives of students (Brooks & Brooks, 1999; OECD, 2012). Characteristics of these environments include students being able to set goals and assess their progress, selecting workshops and teachers, and learning experiences to achieve specific success criteria, undertaking self-assessment and consulting with teachers to clarify their progress and next steps (Baker, 2013; Bird, 2009; Education Endowment Foundation, 2015; Hattie, 2009). Students were also expected to select appropriate spaces and collaborators for learning and progressively manage their own learning. These characteristics are not unique to FLS's and co-teaching, rather they are central to the New Zealand Curriculum (NZC) and expectations of effective pedagogical

practice (Ministry of Education, 2007). What is unique however, are the opportunities afforded through co-teaching strategies and flexible spaces teachers are using to assist children to become self-regulated and to maximise their learning potential. Teachers and leaders have evidenced they are best able to meet diverse student needs using the skills, strengths and experience of the co-teaching team (Buckley, 2000; Villa, Thousand & Nevin, 2013; Welch, 2000).

A student centred approach is consistent with calls for personalised learning, increased collaboration between teachers and the de privatisation of teaching spaces to enhance the sharing of skills, knowledge and effective teaching strategies between teachers (Hattie, 2015b; Ministry of Education, 2007; Sergiovanni, 2009). An effective student centred environment requires teachers have the knowledge and skill sets to meet diverse student needs utilising a range of perspectives of the curriculum. Creating structures, systems and practices which enable self-regulation, providing opportunity for quality feedback from multiple perspectives and scaffolding effective metacognitive approaches provide students with significant advantages in their learning journey (Dignath, Buettner & Langfeldt, 2008; Hattie, 2009). Furthermore, a student centred environment in a FLS supports collaborative and co-operative learning, also identified as having significant positive effects on learning outcomes when well supported and coupled with student self-regulation (Hattie, 2009; Johnson, Maruyama, Johnson & Nelson, 1981). The student centred learning environments evidenced in this study enabled opportunity for students to self regulate through the provision of negotiated success criteria, structures for student self reflection and assessment and the use of formative assessment strategies to support ongoing learning (Bird, 2009; Clarke, 2014; Hattie, 2009; OECD, 2012). Teachers in these student centred environments had the advantage of collective and collaborative problem solving as they worked through the complex puzzle of causing learning to occur for each and every learner (Fullan, 2011; 2014; Hattie, 2009; 2015b; Sergiovanni, 2007).

Rather than teachers being responsible for 'their class,' teachers in an effective FLS consider the needs of each child, planning strategies, provocations and experiences to enable learning utilising the collective strengths of the co-teaching team. Conversely, repeated warnings come from those of the open plan era as well as participants in this study of the risk of attempting to repeat, "Old ways of teaching," in a FLS. The 'old ways,' refer to a teacher centric and teacher directed approach to teaching and learning with an emphasis on direct instruction to the whole class or group together with ability grouping. Teachers identified the problem of teachers transitioning into these environments and trying to work as though they were in a traditional classroom as one of the key factors leading to conflict, noise and stress in variable spaces (Cameron & Robinson, 1986; Cuban, 2004). Effective co-teaching in a FLS requires teachers reconceptualise their notion of a classroom transitioning to a new paradigm where they cooperate and collaborate to meet the needs of a larger group of learners and a concept of 'Ours,' rather than, 'Mine.'

Contemporary FLS's are designed to compliment and support the vision, values and principles of the NZC. They cannot function effectively with two, three or more teachers trying to control and teach their own class solely through the use of direct instruction and attempting to act independently of others in the environment. Retention of a teacher centric environment invariably leads to requests from teachers to section off their space to reduce noise and distractions in the environment (Cuban, 2004; Woolner, 2010). Rather, effective co-teachers work toward the ideal of personalising learning and creating learning experiences to meet student need rather than teaching a predetermined curriculum regardless of the needs, interests and passions of the learner (Robinson, Hohepa & Lloyd, 2009; Fullan, 2011; Hattie, 2009). Furthermore the tradition (especially in New Zealand Primary Schools) of guided teaching of ability groups in reading, writing and maths is challenged by teachers with experience in a student centred FLS. Teachers indicated the value of 'workshopping' based on a specified 'just in time' need for students rather than teachers pre determining the learning intention and placing children in

fixed ability groups (Clarke, 2014). Teachers in this study have identified benefits to students behaviour, self regulation and well-being through a student centred approach and the power of co-teaching (OECD, 2009).

5.3 Effective pedagogy in a FLS

Participants, educationalists and PLD providers use a range of terms to describe effective pedagogy in the contemporary context of flexible learning spaces, MLE's or ILE's. These terms include, but are not limited to; MLP, ILP (Innovative Learning Practices or Pedagogies), ILE (Innovative Learning Environments) with these terms having gained prominence as educators and stakeholders attempt to capture the essence of the potential learning environment created in student centred flexible learning spaces. Characteristics of these spaces include flexible spaces designed with multiple teachers and 'classes' in one space, a student centred constructivists approach, ubiquitous technology together with the characteristics of effective pedagogy as defined in the New Zealand Curriculum. The use of terms such as MLP, ILP and ILE are not particularly helpful to educators as they infer these practices and pedagogies can only occur in flexible spaces with collaborative teaching and tend to 'mystify,' teaching in an 'ILE'. Throughout the survey some participants referred to MLP (which could mean Modern Learning Principles or Practices) and more recently and this rapidly evolving landscape, reference is made to ILP. When participants were asked to elaborate on what 'MLP' was, few could describe any significant characteristics and were more likely to refer to characteristics of effective pedagogy.

Modern learning principles are used. Co-teaching takes away the power of single cell teaching in the way that you have to share space and students. Teaching becomes transparent. Planning is open. It de-privatises education.

MLP's are based on developing graduates that are capable and confident in a range of knowledge & skills.

A closer inspection of these terms and in particular the principles of learning described in “Innovative Learning Environments” (ILE) reveals these principles (like the principles of the NZ Curriculum) can and should be present in each and every New Zealand classroom be it a traditional classroom with a single teacher or a purpose built flexible learning space with 150 children and six teachers (OECD, 2013). Table 2 reveals the very close link between Effective Pedagogy and the 7 Principles of Learning.

Table 2 Effective Pedagogy and The 7 Principles of learning	
Effective Pedagogy (New Zealand Curriculum, 2007)	7 Principles of learning (OECD, 2013)
Students at the centre	Learners at the centre
Facilitate shared learning	The social nature of learning
Create a supportive learning environment	Emotions are integral to learning
Make connections to prior learning and experience	Recognising individual differences
Provide sufficient opportunities to learn	Stretching all students
Encourage reflective thought and action	Assessment for learning
Enhance the relevance of new learning	Building horizontal connections
Inquire into the teaching–learning relationship.	
Effective use of E learning to support and extend learning	

Table 2. The multiple connections between the 7 Principles and Effective Pedagogy

Most recently the Education Review Office published, “Modern New Zealand Learning Practice, MLP” (Education Review Office, 2015). This publication is designed to “Demystify modern learning practice and environments”(ERO, 2015, p. 1). Unfortunately, while the glossary does help define some contemporary terms and acronyms it fails to identify key factors which have been evidenced to improve outcomes, self regulation and hauora. More helpful than creating new terms, is for leaders and educators to consider effective pedagogy, which includes enabling E

Learning, and consider how teacher collaboration, co-teaching and flexible learning spaces might assist teachers to enact these aspirations. Hence, while teachers and leaders are using a wide range of terms to describe their practices, the description, 'co-teaching in flexible spaces' and 'effective pedagogy,' (which includes students at the centre) may clarify direction for schools and assist teachers and educators to plan strategically for transitions communicating effectively and meaningfully with stakeholders. When considering feedback from participants it was evident not all schools had created clarity about effective pedagogy in their environment. This has the potential to create disagreement among co-teachers if their understandings vary.

An effective pedagogical approach to student centred learning incorporates a variety of teaching strategies including direct instruction, guided teaching and reciprocal teaching (Hattie, 2009). Teachers in this research identified they felt more able to undertake these roles to meet the diverse needs of learners and through co-teaching were able to provide multiple perspectives on the curriculum and for student learners (Fullan, 2011). In addition to traditional roles of teachers, participants identified new roles for teachers which were made possible through teacher collaboration and co-teaching. These new roles included the role of, 'Learning Coach.' A Learning Coach was described by a participant as a teacher conferencing with learners to determine the progress they have made with their learning, to challenge, provoke and support learners and to assist with decisions regarding next steps for learning. Others described this as a 'Roaming Teacher'. One school in particular was concerned about the term and role of the Roaming Teacher as they believed this term did not adequately represent the complex and dynamic role of coaching students in an experiential learning context. The term Learning Coach could also be described as experiential teaching where teachers are responsive to the needs and motivations of the learner/s and have no pre-determined objectives (OECD, 2010). This role requires teachers be attentive to the learner, have a sound understanding of the learning process, curriculum content and are skilled practitioners able to utilise questioning strategies, give and receive feedback and understand the importance of

student self regulation and self assessment. This role is made possible by co-teaching for example; one teacher may be in the role of learning coach, while another is involved in guided teaching and another in direct instruction. The alternative grouping arrangement (and size of groups) made possible in a FLS through co-teaching, make these roles possible and enhances effective pedagogical approaches.

Hattie (2015, p. 17) suggests, “Teachers should be coached in alternative ways of teaching that open space invites, should be coached in working with each other to teach together in these spaces, and should be coached on how to evaluate their impact when working in these different spaces.” Co-teaching in a FLS provides an opportunity for leaders and teachers to enhance effective pedagogy as it is presently understood, potentially investigating, “Effective pedagogy in Flexible Learning Spaces,” or, “Effective Pedagogy when Co-teaching in Flexible Spaces” This approach will also assist schools and stakeholders to focus on what counts, that is the teaching and learning rather than buildings and furniture (Hattie, 2015b).

5.3.1 Professional Learning and Development

Effective pedagogy is supported by and aligned to participation in professional learning (especially self initiated) which enhances teachers efficacy and supports continuous improvement (Timperley et al., 2007). This is especially evident and essential when transitioning into and then working as co-teachers in a FLS (Cameron & Robinson, 1986; Cuban, 2004; Hattie, 2015). Teachers in this study identified the importance of relevant PLD to support the transition into and ongoing work in a FLS. This is consistent with the recommendations from the open plan era and from contemporary sources (Friend & Cook, 2010; Hattie, 2015; Villa, Thousand & Nevin, 2006). Furthermore, teachers may require assistance understanding and implementing a student centred approach. While a student centred approach is consistent with effective pedagogy and should be evident in every New Zealand school, it is critical for teachers collaborating in a FLS. Feedback from participants would suggest not all teachers have shared understandings about this approach.

Support for teachers making the paradigm shift to co-teaching in a student centred FLS took a number of forms. One approach was the search for external expertise to support the transition. Timperley, Wilson, Barra and Fung (2007) affirm this approach suggesting teachers and leaders seek external expertise where substantial new learning knowledge, skills and strategies are required, especially if these experts have an on-going relationship with the school. However, participants evidenced a lack of such expertise leaving teachers and leaders to rely on their own research. This is not necessarily a negative for schools in this study as the presence of external expertise in itself does not guarantee success (Timperley et al., 2007). In addition to external experts, participants in the study suggest an important component of PLD involves ongoing opportunities to visit other schools where effective co-teaching is occurring together with time to reflect on such visits and plan next steps. While visits to other schools is important, facilitation of discussions and inquiry into reflections is essential for teachers to gain maximum benefit from the PLD approach (Timperley et al., 2007). Given that teachers have traditionally worked independently in a privatised space there is a significant need for learning the skills and dispositions of collaboration and the implications these have for communication, planning, assessment, and reporting. The failure to provide the necessary PLD support to teachers and leaders in the open plan era was a significant factor in its ultimate demise (Cuban, 2004; Cameron & Robinson, 1986, Department of Education, 1977). Likewise, participants in this study considered the lack of relevant and evidenced based PLD support a limiting factor for teachers and leaders transitioning to co-teaching in a student centred FLS.

Feedback from participants in this study confirms the sector is lacking clear pathways for transitioning to co-teaching in a FLS. Quality PLD is required for principals, senior and middle leaders so they can support teachers (Cuban, 2004; Cameron & Robinson, 1986; Hattie, 2015). This lack of support has resulted in leaders creating FLS environments through trial and error with minimal empirical evidence. PLD providers have attempted to support schools through the process, however their impact and

benefit to schools has been questionable and at times has added to confusion through the creation of new terms such as MLP and now ILP. Leaders identify that for many teachers the transition to co-teaching in a FLS is a significant paradigm shift requiring pre-service and in-service support which to date, they themselves have had to provide. Added to the challenge for leaders, are the timeframes around re-builds, new builds and retro-fits with some schools working in very challenging physical spaces while attempting to prototype and implement co-teaching and student centred learning. PLD is identified by teachers, leaders and researchers as imperative to assist with the creation of effective learning environments, this is as important for leaders as it is for the teachers and support staff working in these spaces. While 50% of teachers identified they had received adequate PLD to support the transition, 100% of principals reported inadequacy in PLD provision for leaders. This lack of PLD is consistent with the open plan era and places teachers, students and the community at risk (Cameron & Robinson, 1986; Cuban, 2004). There is an opportunity for PLD providers to create responsive and tailored PLD opportunities to support schools and leaders through this critical transition.

5.3.2 Leadership

Leadership plays a critical role in the transition to and creation of effective teaching and learning environments in a FLS. Teachers identified the critical role leaders play in establishing vision, challenging beliefs, supporting staff and ensuring a school wide collective approach to change and innovation. Teachers commented on the importance of leaders, 'Holding the vision,' for the school and driving the change process through professional development, enabling resources and facilities. Timperley et al., (2007) affirm the importance of principals holding the vision for schools, for student achievement and for linking those visions to PLD and specific goals and outcomes. Furthermore, senior leaders (especially the principal) were identified as playing a critical role in enabling risk taking and mistake making as teachers grappled with the challenges of learning to work collaboratively to create an effective student centred learning environment in flexible spaces. Robinson et al., (2009) identify the central role leaders play in supporting problem solving and

investigating new approaches to teaching by supporting staff with resources, systems and structures to implement new practices. For schools considering the paradigm shift to co-teaching in a FLS it is important leaders play a central role in not only supporting teachers but also participating in PLD (Clarke, 2014; Robinson, Hohepa & Lloyd, 2009; Timperley, et al., 2007). Such is the public awareness around MLE's and now ILE's, principals and senior leaders must lead the change process in an informed manner rather than sending staff off to look at other schools and then letting them experiment in their own spaces (Hattie, 2015b). Teachers in this study are very explicit about the importance of leaders leading this change process. The Ministry of Education affirm the critical role leaders play in change process identifying this leadership role as one of the main functions of leadership (Ministry of Education, 2008).

There is a risk in Canterbury of schools jumping onto the 'Bandwagon' of MLE's, MLP's, ILE's, ILP's and flexible spaces without a clear understanding of the rationale for these environments and a clear process for transitioning to these.

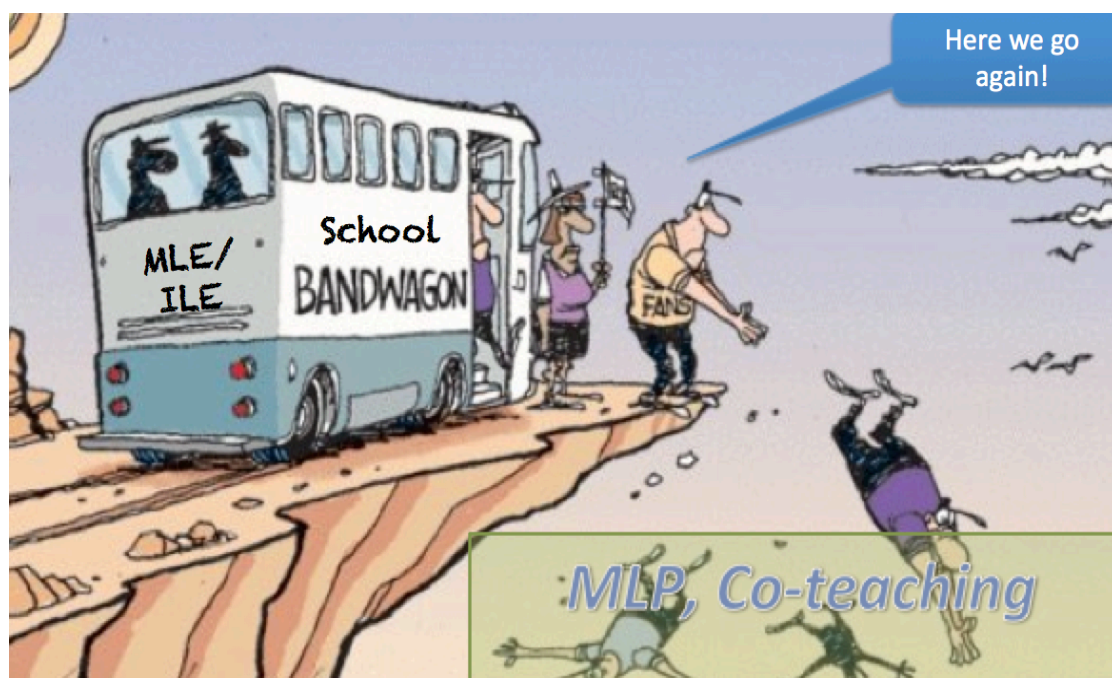


Fig 4. Jumping into MLE/ILE without understanding student centred learning and effective pedagogy is potentially jumping on the 'bandwagon'

Effective transition requires principals and senior leaders understand the rationale for co-teaching in a FLS and in particular the opportunity to promote student centred learning within schools. From this foundation, leaders can then support their staff to carefully and strategically transition to these environments. Goals and expectations play a central role in everyday practice as does the necessary funding, release time and PLD to enable teachers to achieve these goals (Robinson, et al., 2009). Schools require new and innovative approaches to employment and appraisal structures and policies, annual placement of team members and digital systems to support collaboration. These changes require direction from leadership and support from Boards of Trustees. Teachers in this study identify the importance of unwavering support from their leadership team to maximise the potential of creating an orderly and supportive learning environment (Robinson, et al., 2009). There is a risk to students, staff and the wider community of transitioning to collaborative teaching and learning environment because buildings are changing, conversely there is opportunity for leaders and staff to request environments be built to support their emerging pedagogical practices and student centred approach.

5.3.3 Identifying effectiveness of co-teaching

When asked what measures teachers use to determine the effectiveness of co-teaching few utilised achievement data, attitude or engagement surveys or similar quantitative measures to determine effectiveness. Only ten of the 28 teacher participants identified a measurable outcome (most commonly progress against goals) with the remainder using more global approaches such as communication between co-teachers and feelings of well-being. Those who have identified learning goals are paying attention to outcomes and progress that both support student self regulation and learning progress. Hattie (2012), suggests teachers take the time to determine the impact of their teaching strategies. This is especially important in a paradigm shift of the magnitude evolving in Canterbury presently. There is significant public scrutiny of flexible learning spaces, of MLE's and co-teaching with high profile secondary schools speaking out in the media in favour of traditional classrooms and

teacher centric learning and a diet of direct instruction (Wilson, 2015). School leaders who take the time to determine the impact of new strategies (especially co-teaching in a student centred environment) not only assist with professional growth of their teachers but also provide evidence for alternate approaches to teaching and learning (Hattie, 2012). There are a wide range of measures school leaders can use to objectively analyse contemporary co-teaching in student centred flexible learning spaces. These include progress against National Standards, attitude and engagement surveys, measuring indicators of self regulation and measures of student well-being and hauora. It is important measures related to factors that make a difference such as the quality of teaching rather than distractions such as buildings (Hattie, 2015; 2015b).

5.4 Collaboration and collaborative teaching

Participants identified a number of challenges related to transitioning to co-teaching in a FLS including the complexities of collaboration when working with a colleague in the same physical space on an ongoing basis while learning how to co-teach.

5.4.1 Collaboration; Communication and inter-personal skills

Communication intensifies when teachers work collaboratively as co-teachers. Moment by moment decisions typically made by teachers play a critical role in the creation of effective teaching and learning environments (Hattie, 2015b). However, in a FLS decision making will typically involve two to five teachers with individual decisions and behaviours potentially having an impact on the whole environment. Teachers who have worked in a traditional classroom in a private autonomous space may struggle to communicate and collaborate effectively in a FLS, this has the potential to lead to conflict, stress and attempts to withdraw to private spaces. Teachers in this study repeatedly acknowledge the importance of having the necessary skills to engage in professional conversations together with ongoing conversations about the ways each co-teacher contributes (or not) in the space, their

interactions with children, parents and other staff and the co-teaching strategies used. Teachers are not effectively trained to consider their communication and interpersonal skills when working closely with colleagues (Robertson, 2008). This lack of training potentially places teachers at risk when transitioning to co-teaching where every decision may have an impact on another teacher and a large group of students.

Teachers identified the need to focus conversations on factors that most positively impact on improving learning outcomes rather than simply meeting to consider administrative and organisational matters (Fullan, 2015; 2015b). This presents a dilemma to teachers transitioning to a FLS as one of the most important factors identified was that of systems and routines to support teaching and learning and these were only created through detailed, ongoing conversations about every aspect of teaching and learning in a FLS. While these conversations are time consuming and may have no impact on supporting individual learning needs they are in fact essential to ensure a safe, supportive and orderly learning environment. Feedback from participants suggests ongoing investment in PLD to support communication and collaboration enhances the culture of the learning environment and has the greatest potential to assist teachers to improve learning outcomes. Such support must go beyond the routines, structures and systems required for multiple teachers working together to ongoing learning talk regarding specific learning needs and strategies to improve outcomes, self regulation and hauora.

5.4.2 Collaboration; Developing a range of co-teaching strategies

Teachers in FLS's in this study have inconsistent approaches to co-teaching. Some could not identify any strategies unique to teaching in a FLS other than running 'workshops', others claim they utilise a wide range of co-teaching strategies but were unable to specifically identify what these were, how they were implemented and when. When given the opportunity to reflect on the use of six specific co-teaching strategies a number reported 'we use all of those all of the time.' Leaders identified co-teaching implementation was inconsistent in 66.7% of cases. These findings suggest teachers lack specific strategies to support co-teaching and fail to reflect

strategically on the effectiveness of particular co-teaching practices. This not only has implications for the teachers in these spaces, but also the many teachers and leaders who visit these schools on their own journey toward working in a FLS. Practicing Teacher Criteria (PTC) 6-9 & 11-12, detail expectations that teachers will understand and reflect on teaching strategies used, analysing the effectiveness of the strategies, critically reflecting on evidence and refining practice as required (Education Council, 2015). To make this critical reflection possible, teachers will need to plan specific co-teaching strategies and reflect explicitly on the effectiveness of such strategies. This is especially important given co-teaching strategies in the literature have their origins in the inclusive schooling movement and generally relate to supporting special needs learners. These co-teaching strategies may have value in a FLS , however explicit planning and reflection is required to determine merit. Given the co-teaching strategies evidence in the majority of the participant schools have origins in the inclusive schooling movement there is opportunity for educators to refine these to suit the unique New Zealand context.

5.4.3 Maximising the potential of flexible learning spaces

Teachers specifically noted a need for time to communicate with co-teachers on a regular basis and in particular the importance of shared teacher workspace to facilitate regular in-depth learning focused conversations (Cameron & Robinson, 1986; Timperley, 2008). Where teachers are taking collective responsibility for a large group of students ongoing conversations ensure all stakeholders are aware of learning needs and are able to collectively participate in problem solving to meet student needs (Fullan, 2011). Additionally, as co-teaching relationships progressed beyond two teachers, the importance of a shared place for conversations increase. While enabling space is important for teachers, it is even more important for teaching and learning. A number of participants explained how poorly designed space limited the effectiveness of collaborative teaching and learning and children's ability to self regulate. In addition to teacher workrooms, effective FLS's included multiple breakout learning areas, quality acoustic treatment, natural light and natural

flow to the outdoors and sufficient 'openness' to allow reconfiguration of the area to respond to a wide range of teaching and learning needs (Nair, 2014). Teachers who attempt to co-teach in traditional spaces linked by shared foyers and corridors found the space restrictive and negatively impacting on co-teaching. The provision of flexible learning spaces enables enhanced teacher collaboration, facilitates co-teaching and provides improved opportunity for student self regulation supporting multiple modes of learning.

5.4.4 Smart systems

The provision of resourcing for suitable systems to support teaching and learning is essential to create high performing schools (Robinson et.al, 2009). Systems include digital systems and day to day systems for the functioning of the space. As students are encouraged to be more self managing and regulating and are learning in environments with co-teachers, smart systems are essential. Teachers in the study clearly articulate co-teaching environments in a FLS are more structured than their experience of traditional spaces. These structures and systems are identified as necessary to support self regulation and to assist teachers to monitor progress and personalise learning.

Teachers sought digital system to share planning, ongoing assessment and reporting. These digital systems also support organisation of workshops or needs based teaching groups and monitoring of progress. A number of participant schools have refined their digital systems to support teaching and learning in five week blocks with very specific and detailed monitoring of student progress (or otherwise) during this timeframe. The majority of schools are utilising Google tools to share planning, assessment and teaching strategies. Additionally, a number of schools are utilising systems such as Google classroom, Hapara and other IT systems to support and manage students learning and digital portfolios. While these tools are helpful, teachers and leaders are spending significant periods of time creating personalised systems, in each team, in each school, across New Zealand. At present, smart

systems are not evident as these require investment of many hours of planning and creation time in each school and most fail to adequately pass information from one year to the next with the child, that is they fail to support personalised learning over time.

Online forums such as 'VLN' (Virtual Learning Network, Ministry of Education, 2016) show regular posts from teachers who are trying to determine how to work in a FLS with co-teachers, and in particular, the systems required to support collaboration. The day to day functioning of an effective FLS requires explicit and well considered systems as teachers make a paradigm shift to co-teaching and collective responsibility and accountability for student progress and achievement. Feedback from participants would suggest systems (especially digital systems to support co-teaching, planning, assessment and reporting) are anything but 'smart' at present. This paradigm shift, and the ongoing work in a FLS, requires leadership provide resourcing for staff to access the required systems together with investigating potential 'smart systems' to support this new paradigm and effective pedagogy in a FLS.

5.5 Transition to student centred co-teaching, learning from the past

The open plan era had many of the same drivers as the current trend of co-teaching in a student centred learning environment. In the intervening 40 years, international curriculums and especially the NZC have moved much closer to the ideals, aims and goals of the open plan movement. Arguably, this should make the transition to a FLS less challenging for teachers and children, reducing the potential cultural, pedagogical and philosophical shock of the transition. The lessons from the open plan era allow 21st century educators to minimise risk and maximise opportunity. Reviewers in 1977 and 1986 made strong recommendations regarding the physical space, teaching and learning, student needs, communication with families, PLD and teacher training.

During the open plan era the movement was almost diametrically opposed to the policies, curriculum, pedagogy and understood 'best practice' of the day as illustrated in Fig. 5.

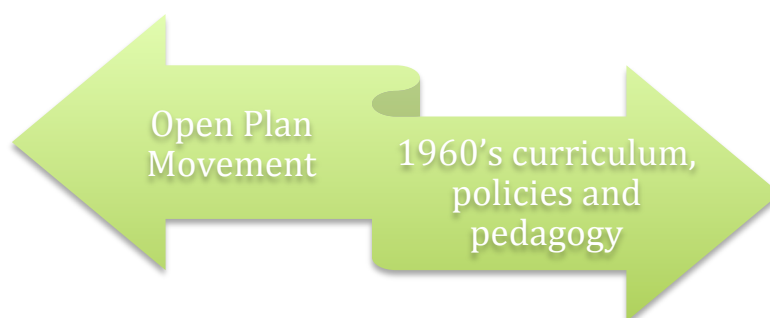


Fig. 5. The tension of the open plan era and disconnect with policies and curriculum

Teachers in the open plan era faced significant pedagogical and philosophical challenges transitioning into open plan spaces, they also faced a paradigm shift to collaborative, de privatised practice together with systems, structural and physical changes. Teachers in 2015 in New Zealand have a curriculum aligned with the aspirational pedagogy and philosophy of the open plan era (Fig. 6).



Fig. 6. The alignment of the current era of FLS, student centred learning, collaboration and the NZC

The feedback from participants in this study suggests not all teachers transitioning into a FLS and working as co-teachers are aware of the vision, values, principles, and effective pedagogy of the NZC and accordingly may have significant transitional needs. The three diagrams below (Fig. 7,8 & 9) illustrate the challenges faced in the

open plan era and the difference between a teacher transitioning into a FLS who understands the NZC in 2016 as opposed to a teachers in 2016 who may not understand the vision, principles and effective pedagogy as described in the NZC.

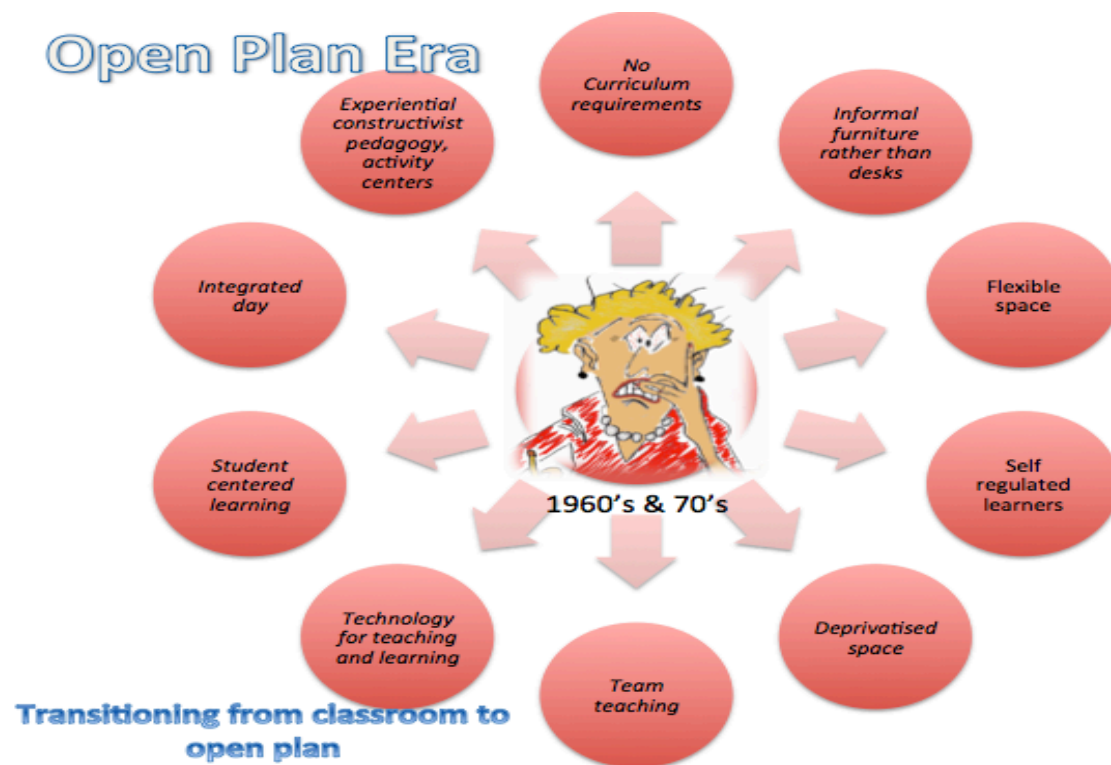


Fig. 7. The challenges faced by teachers transitioning to open plan in the 1970's

As illustrated above, teachers in the open plan era faced a myriad of challenges as they transitioned into open plan classrooms. They were transitioning from a traditional approach of direct instruction, whole class teaching, teacher centred, children in single desks in rows, a curriculum of the “Three R’s” and absolute autonomy in a private space to a whole new paradigm, pedagogy and philosophy. Without adequate support, teachers who transitioned to the open plan era quickly reverted to their known practices and pedagogies. Leaving teachers to make the transition simply because they had the space totally overlooked the complexities of teaching and learning and the significant paradigm, philosophical and pedagogical shift required for teachers to work effectively in these new environments (Department of Education, 1977).

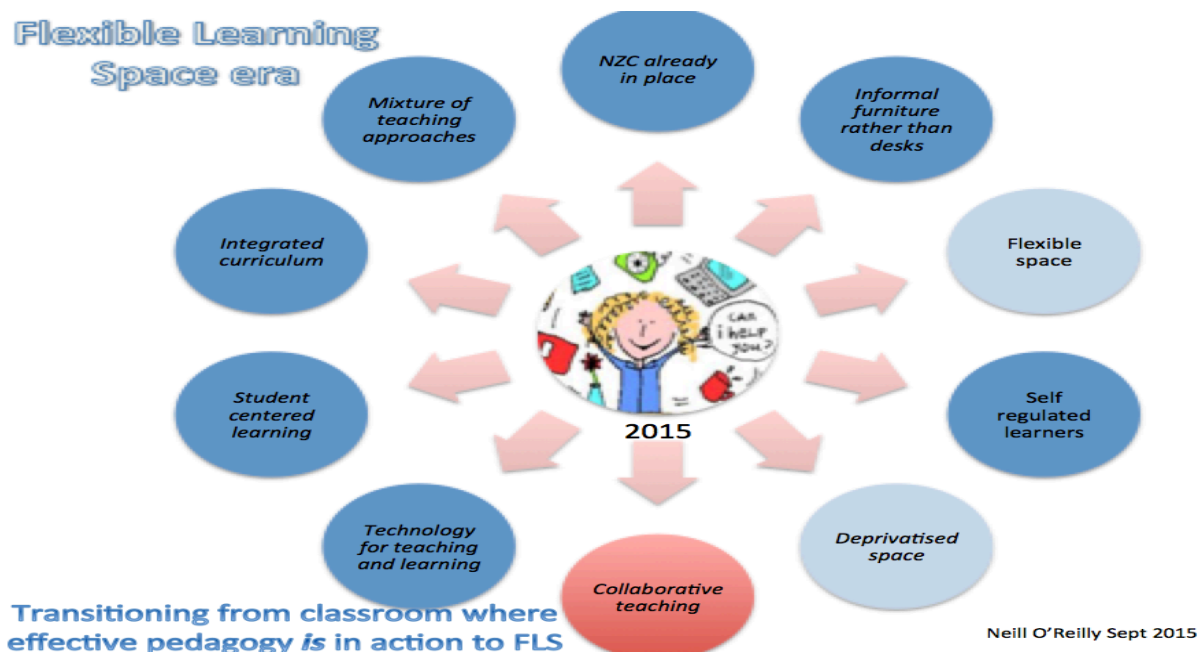


Fig. 8. Challenges faced by teachers transitioning to a FLS in 2016 where effective pedagogy is understood

As illustrated in Fig. 8, teachers with a sound grasp of NZC may only need to consider how to use flexible spaces effectively and possibly adjust to a deprivatised space, they will however, have considerable adjustments to make to learn how to co-teach (indicated in red) effectively. Teachers and leaders who do not have a sound understanding of NZC and effective pedagogy face a significantly larger challenge not too dissimilar to the challenges faced in the open plan era (Fig. 9).

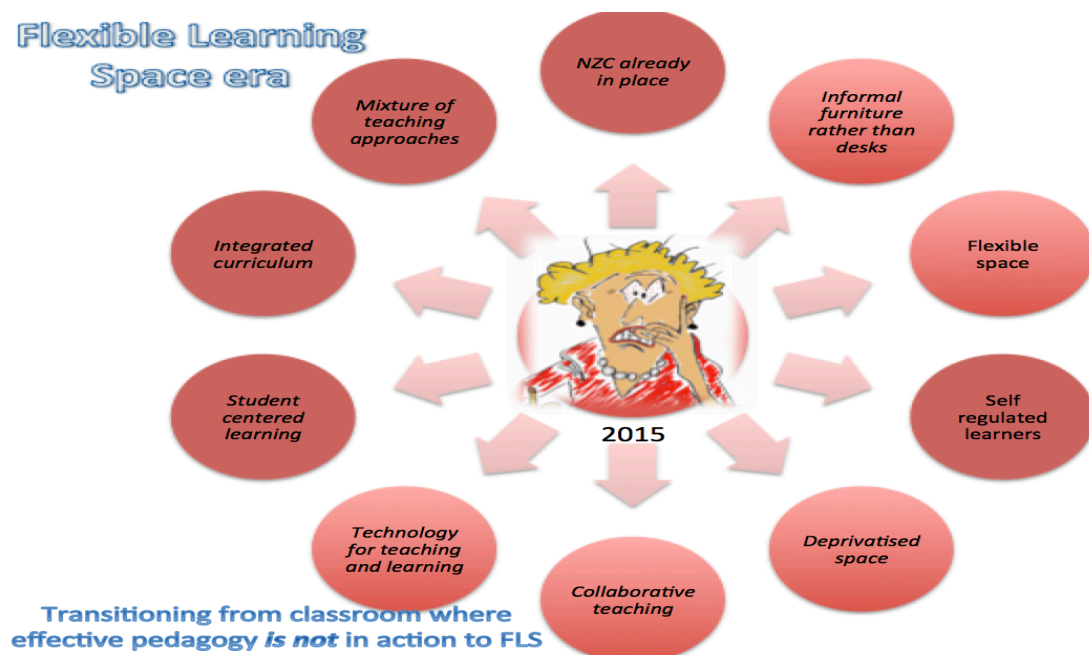


Fig. 9. Challenge of transitioning to a FLS in 2016 where effective pedagogy is not understood

Despite having an enabling and empowering national curriculum, feedback from participants suggests some teachers do not have a clear understanding of effective pedagogy with learners at the centre. In these cases teachers may be in no better position than their colleagues of 1970 and will require considerable support to work effectively in a student centred, co-teaching environment in 2016. As in the open plan era, it is critical staff have the necessary support to transition to co-teaching in a FLS. This will involve understanding the current 'position' of the teacher/s and school and navigating an appropriate way forward with the relevant PLD, resources, systems and leadership support required for a successful transition.

Chapter Summary

Transitioning to co-teaching in a FLS and creating effective learning environments requires explicit planning and preparation. Teachers and leaders require a clear understanding of a student centred learning environment, effective pedagogy, collaboration and co-teaching and will need to develop shared beliefs. Support will be required to assist staff to develop effective collaborative, communication and interpersonal skills as they transition to a FLS. Specific co-teaching strategies are required to maximise the potential of collaboration and flexible spaces with teachers and leaders needing to identify goals and measures to determine the effectiveness of these strategies. Finally, staff will require specific PLD to maximise the affordances of flexible learning spaces. Leaders and the Ministry of Education have the benefit of significant research and findings from the open plan era which are instructional for the current paradigm shift, it is advisable these lessons are considered to mitigate risks to students, teachers and the reputation of educators in the contemporary context.

6 CHAPTER SIX: Conclusions and Recommendations

This chapter summarises this research including conclusions and recommendations with supporting illustrations to clarify key understandings for those transitioning to co-teaching in flexible learning spaces.

Focusing question: *What are the conclusions and key recommendations that would make a significant impact on the successful implementation of co-teaching in a student centred FLS?*

6.1 Conclusions

Boards of trustees and school leaders have an opportunity to reassert the place and importance of the New Zealand Curriculum with the current support from the Ministry of Education for the repurposing of existing spaces or the construction of new Flexible Learning Spaces. The Ministry has been explicit in its intention to empower schools to develop Innovative Learning Environments (ILE's), through provision of space, resources and an existing curriculum all designed to support student centred learning, teacher collaboration and co-teaching. Stakeholders have the benefit of reviewing the open plan era approach toward student centred learning and co-teaching in open and variable spaces to ensure the contemporary movement leads to improved outcomes, self regulation and hauora for students of 2016 and beyond.

This research highlights the importance of a number of critical factors or building blocks when transitioning to flexible learning spaces and co-teaching (Fig. 10).

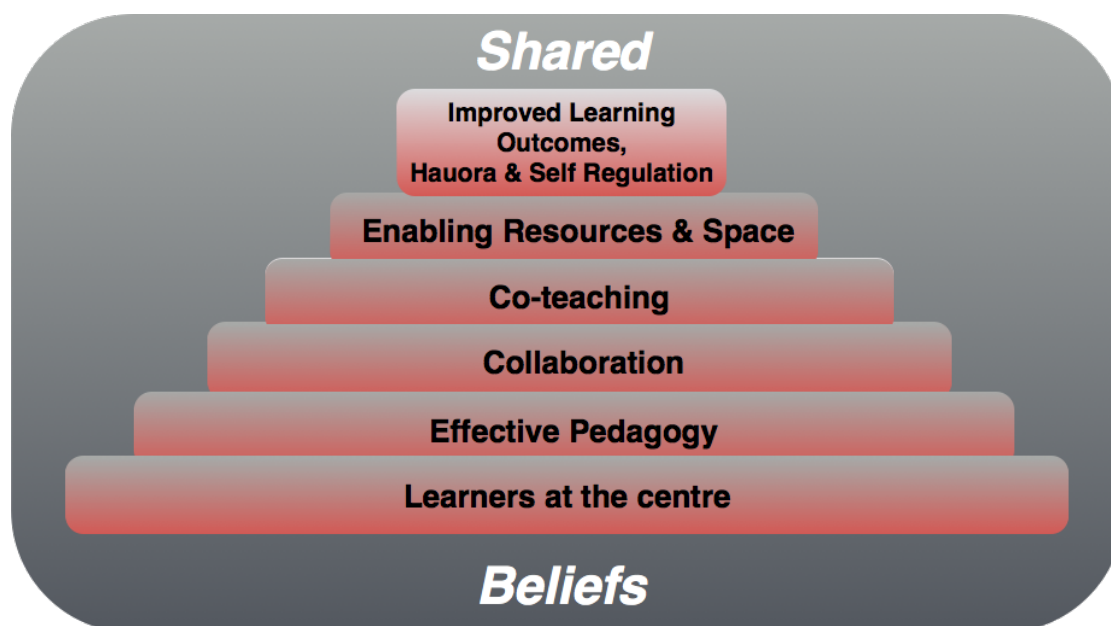


Fig. 10. The building blocks for effective co-teaching student centred learning environments

As illustrated in Figure 10, schools successfully transitioning to collaborative teaching and learning have students at the centre, understand what effective pedagogy means in their school and flexible space, are developing the skills of collaboration and have specific strategies for co-teaching. They purposefully use physical space and associated resources to support student centred learning, teacher collaboration and co-teaching. Finally they provide time and strategies to allow teachers to have their beliefs challenged, refined and overtime establish shared beliefs regarding student centred learning, collaboration and co-teaching.

The starting point for any change process is first to ask, “*Why?*” In the case of a paradigm shift to collaborative teaching and learning in flexible spaces why would we do this? Why construct or re-purpose spaces so teachers and students can work and learn together in one space? What beliefs do we hold about this approach? Most importantly, what are the perceived benefits to students when learning in these environments? What research or emerging evidence is there to support the proposed change? These questions are of critical importance to teachers, support staff, students, whanau and the community as they will provide a rationale for proposed change and allow stakeholders to be informed and engaged in the change

process. It is not acceptable nor historically successful to simply allow a change in building design to drive pedagogical change. As illustrated (Fig. 10.1) using spaces or resources (such as technology) as the rationale for change places students at risk and fails to identify and work from a solid foundation of learners at the centre and effective pedagogy.

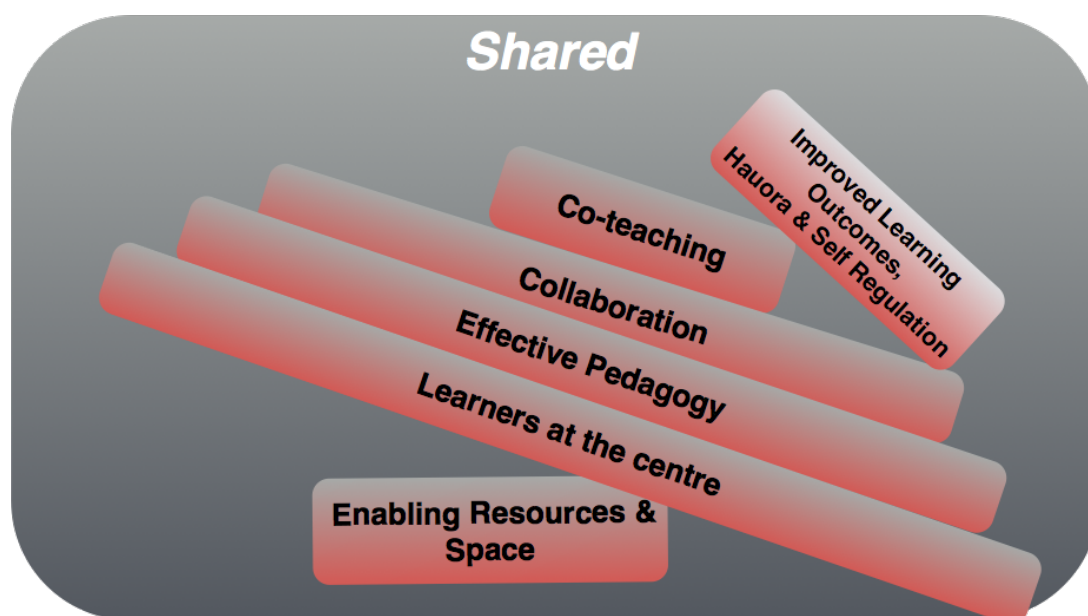


Fig. 10.1. The risks of placing buildings (FLS) or IT as the rationale for change

There is significant potential risk for students, staff and whānau when space (buildings) or technology drive the change process. This was evidenced in the open plan era and can often be evidenced schools in 2016 where technology and programmes such as 1:1 and BYOD are promoted as a ‘fix all,’ rather than building from a foundation of learners at the centre and effective pedagogy. As Hattie (2015) suggests, we enter into the politics of distraction when the focus of the school or the sector shifts from factors that do make a difference to those which have less potential impact such as buildings and IT resources. Regardless of the change under consideration, schools leaders and Boards of Trustees have a responsibility to place learners at the centre of decision making and base any change on their needs and through the filter of effective pedagogy. There is also a risk co-teaching becomes the rationale for change as opposed to co-teaching being identified as a strategy to support a student centred environment grounded in effective pedagogy (Fig. 10.3).

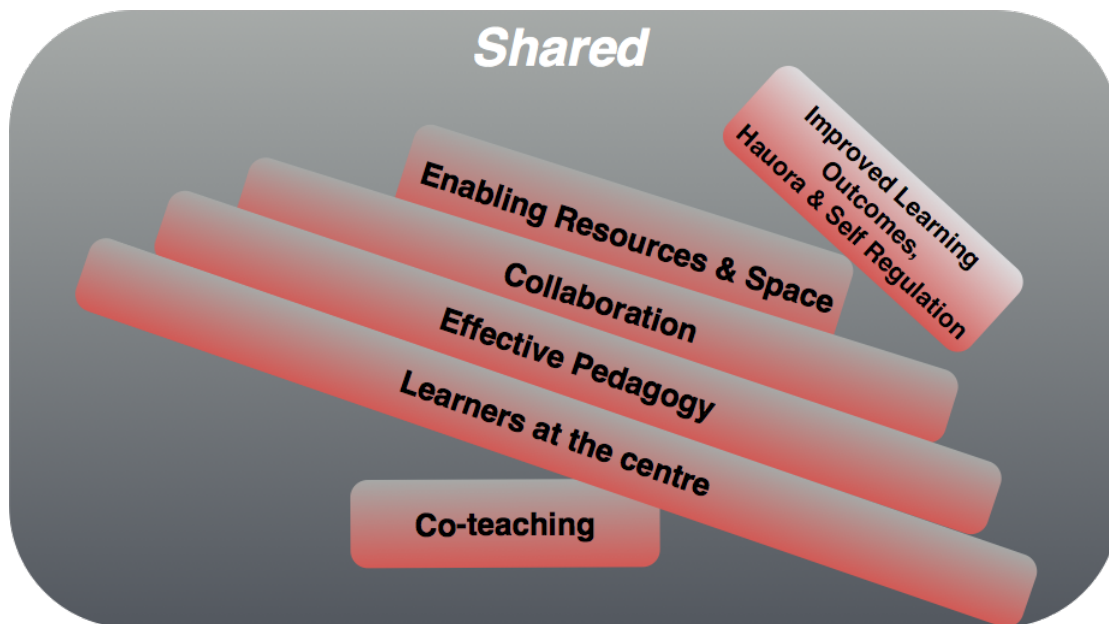


Fig. 10.3. The risks of co-teaching as the rationale for change

Simply putting two teachers together in one space without a rationale, systems, support and structures is problematic and high risk. Before teachers embark into the highly complex domain of co-teaching in flexible spaces they first need to understand, 'Why?' To create an effective teaching and learning environment they then need to have clarity about what learners at the centre means, what effective pedagogy looks like in their school and understand how to collaborate effectively with other adults to achieve these aims. Failure to take these steps is well documented through the open plan era resulting in significant stress and risk for teachers, students and whanau. There is a significant risk to the well-being of all, the learning and self regulation of students and the reputation of the profession when rushing into co-teaching in flexible learning spaces (or MLE/ ILE) without the correct foundations in place (Fig. 10.4).

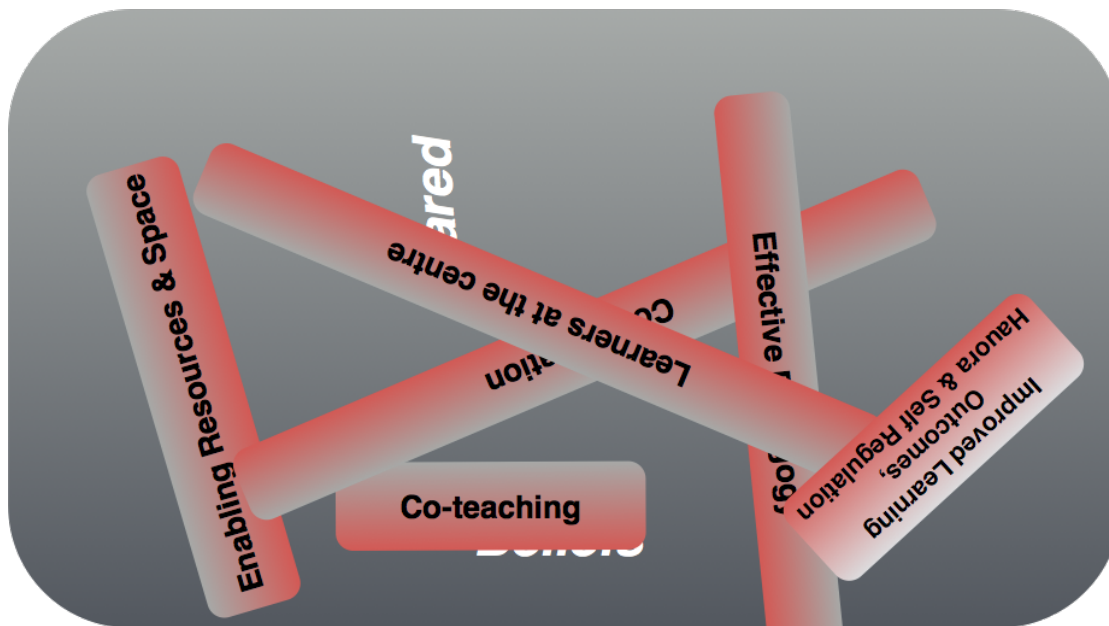


Fig. 10.4. The net results of change without understanding 'Why?'

Teacher collaboration not only improves the practices of teaching but also improves outcomes for learners. For many years New Zealand teachers have taken time to collaborate with colleagues to moderate assessment information, plan units of learning, problem solve and share the immense task of meeting the diverse needs of learners. Research affirms the practice of teacher collaboration and encourages each teacher focus on those factors that really make a difference for learners. Through the provision of flexible learning spaces teachers now have the opportunity to maximise teacher collaboration by working together in one physical space to best meet the diverse needs of learners.

The skills of collaboration, learning focussed communication and inter-personal skills have a significant bearing on the success of a teachers working in a FLS. Specific strategies and PLD may be required to support teachers to gain the necessary collaboration skills to maximise working with colleagues. Teachers currently working in FLS's identify effective communication and collaboration skills essential to work together.

Co-teaching in flexible learning spaces can make a significant positive difference for learners and enhance the quality of teaching, teacher efficacy and well-being. When established with learners at the centre and a shared understanding of effective pedagogy, co-teaching has the potential to enhance the quality of teaching, the retention and well-being of beginning teachers and the quality of the learning environment. Teachers working in FLS's have the opportunity to learn from and support one another on a moment by moment basis and gaining differing perspectives of learners and the curriculum as they work alongside colleagues. Teachers have real time support when dealing with challenging behaviour, learning difficulties and learning challenges. They are better able to meet the diverse needs of their learners through shared planning and implementing a range of co-teaching strategies. Teachers benefit from alternate perspectives of individual students and their own teaching practice. They are able to arrange learners into needs based groups and report that collectively they are better able to meet needs than when working in isolation. Teachers report less disruptive behaviour, improved student self-regulation and increased engagement and motivation from students where FLS's are established with learners at the centre. Teachers are also likely to consider themselves more accountable in these environments sharing planning, assessment and having their teaching practice made public.

Students now have the opportunity for multiple perspectives of the curriculum as they interact with numerous teachers in one space on a daily basis. Students no longer run the risk of been 'stuck' with a teacher they do not relate to for a year or more, rather having a number of teachers with whom they can form learning focussed relationships with. In effective FLS's students gain a greater sense of agency and well-being as a group of teachers work together to support their learning. Students also have the benefit of the differing strengths and interests individual teachers bring to the FLS. Where shared beliefs are in place, students also have the benefit of consistent messages, practices and processes to support their learning, hauora and self regulation.

The physical environment in a FLS provides opportunity for teachers and students to select the best location for learning. Well designed spaces provide opportunity for small and large group learning, direct instruction, guided teaching or individual inquiry and learning, together with the opportunity to create specialist learning zones within the environment. School leaders and BoT's would be well advised to ensure their building design provides opportunity for small and large 'break out' learning areas in addition to more open spaces. Acoustic treatment is of critical importance when two or more 'classes' share a learning space as are natural light, ventilation, insulation and connection to the outdoors. Teachers also benefit from having a shared space where they can meet for professional conversations, planning, assessment and problem solving. While physical space should not be the driver for change it will support teachers to create an effective teaching and learning environment.

In the New Zealand context collaborative teaching and learning in flexible spaces provides opportunity to affirm the NZC and concepts important to Māori further enhancing educational outcomes, well-being and self regulation for tangata whenua (Ministry of Education, 2011b). In particular these environments support:

Manaakitanga; environments when ako looking after others, show respect and kindness to others and enhancing mana.

Whanaungatanga; building strong relationships, building a sense of family connection, providing a sense of belonging through building relationships, and including others and learning in multi year level studios together

Rangatiratanga; learners encouraged to take leadership and decision making around their learning and achievement, environments where progressively students are enabled to make decisions about where they learn, who they learn with, when, what and why they learn.

Ako; a dynamic form of learning where the educator and the student learn from each other in an interactive way

Tuakana teina; refers to the relationship between an older (tuakana) person and a

younger (teina) person. Within teaching and learning contexts, this can take a variety of forms:

- Peer to peer – teina teaches teina, tuakana teaches tuakana.
- Younger to older – the teina has some skills in an area that the tuakana does not and is able to teach the tuakana.
- Older to younger – the tuakana has the knowledge and content to pass on to the teina.

While these concepts should be present in every New Zealand School, evidence from this study suggests the flexible learning environments (typically multi level) provide additional opportunity for enhancing outcomes for Māori ako.

6.2 Key Recommendations

6.2.1 Situate learners at the centre

It is recommended leaders, professional learning providers and teacher training organisations develop some key understandings of what learning is when students are situated at the centre, the implications for teaching, learning, the physical space, systems, teaching strategies and resourcing. The success of any FLS is determined by teachers who are working within the space having a shared understanding regarding student centred learning and evolving their pedagogy, practices and beliefs to support this approach. All stakeholders need to ask:

“Why situate students at the centre?”

“What does student centred learning mean at our school?”

“What are the success criteria for our school when students are at the centre?”

6.2.2 Develop shared understandings about *Effective Pedagogy in a FLS*

When teachers work together in one physical space taking shared responsibility for learning they require a shared understanding of effective pedagogy to maximise opportunity for students. Inconsistency and a lack of shared understanding regarding effective pedagogy can lead to confusion and stress for students and conflict for staff. Teachers and leaders need to ask:

“What does effective pedagogy look, sound and feel like at our school and in our FLS?”

6.2.3 Develop skills of collaboration

Little is done in pre-service or in-service training to assist teachers to understand how to collaborate or communicate effectively with colleagues or how to develop inter-personal skills. Transitioning into a FLS and co-teaching exposes this lack of training, skill and knowledge placing teachers and students at risk. Teachers, school leaders and PLD providers need to ask:

“What are the skills needed to collaborate effectively?”

“How do we create learning focussed communication and develop the skills to communicate effectively with colleagues to best meet student needs?”

“What are inter-personal skills and how might we improve these to achieve our goals?”

6.2.4 Implement specific co-teaching strategies

Teachers in the study repeatedly warn that simply transitioning old ways into a collaborative environment is a significant risk. Teachers will benefit from understanding the strategies available to enhance co-teaching and how to maximise the power of two or more for the benefit of learners. Co-teaching in a FLS provides opportunity to achieve outcomes simply not possible in a traditional classroom with one teacher and 27 children. Teachers need to ask:

“What are the specific strategies we can implement to maximise the power of two or more?”

6.2.5 Analyse the impact of the co-teaching

Co-teaching in a student centred FLS is a significant paradigm shift for staff, children and whanau. There is considerable risk if teachers are not supported and if they fail to understand the building blocks to creating an effective teaching and learning environment. Teachers and leaders need specific goals and measures to determine the effectiveness of this approach and should ask:

“What strategies and measures can we use to determine the impact of the teaching and learning environment we are creating?”

“How and when will we ‘check’ on progress and who will we report to?”

6.2.6 Strategically prepare for change and the future

Flexible Learning Spaces (FLS's) are the most effective design response to an ever-changing world and the rapid and significant impact of technology on education and the potential of teacher collaboration. To fulfil the goals and aspirations of the New Zealand Curriculum requires flexible spaces with students at the centre. Substantive research supports teacher collaboration as a critical factor for continuous improvement in the education sector. Working in collaborative environments is not second nature to teachers. They require quality PLD to make the paradigm shift to co-teaching in a de-privatised environment. Additionally, teachers and leaders need to fully understand the principles, expectations, values and key competencies expressed in the NZC if these environments are to reflect the national curriculum. Teachers require support to understand how and when to use systems, tools, strategies and space to achieve desired outcomes and what enabling structures need to be in place. Understanding how to work with one another in a single space, how to maximise strengths, minimise weaknesses, learn from and with one another and to participate, as respectful professionals will take time and ongoing support. To achieve these goals the follow final recommendations are suggested:

- Creation of professional learning modules to support understandings of student centred environments
- Identification of FLS environments where effective collaboration, co-teaching and student centred learning is evident
- Additional resourcing from the Ministry of Education to support schools transitioning to co-teaching in FLS's
- Creation of resources to support schools understanding of effective use of flexible space
- Sector wide support for smart tools to support collaborative teaching and learning
- Additional PLD for leaders transitioning schools to FLS

7 REFERENCES

- Absolum, M. (2006). *Clarity in the classroom; Assessment for learning*. Auckland: Hodder Moa
- Alerator, S., & Deed, C. (2013) Teacher adaption to open learning spaces. *Issues in Educational Research*, 23 (3), 315-330
- Aliaga, M., & Gunderson, B. (2005). *Interactive statistics* (3rd ed.). Upper Saddle River, NJ: Pearson Education
- Anderson, R., & Speck, B. (1998). Oh What a Difference a Team Makes: Why Team Teaching Makes a Difference. *Teaching and Teacher Education* 14 (7), 671 – 686.
- Baker, L. (2013). Metacognitive strategies. In J. Hattie & E. M. Anderman (Eds.). *International Guide to Student Achievement*. New York: Routledge. pp. 419-421.
- Bauwens, J., Hourcade, J. J., & Friend, M. (1989). Cooperative teaching: A model for general and special education integration. *Remedial and Special Education*, 10 (2), 17-22.
- Bennet, S.N., Andrae, J., Hegarty, P., & Wade, B. (1980) *Open Plan Schools: Teaching Curriculum and design*. Slough: NFER.
- Bird, L. (2009). *Developing Self-Regulated Learning Skills in Young Students*. Deakin University. Unpublished Thesis. Retrieved from:
<http://dro.deakin.edu.au/eserv/DU:30027481/bird-developingself-2009.pdf>
- Bishop, R. & Glynn, T. (1999). *Culture counts: changing power relations in education*. Palmerston North: Dunmore Press.
- Blackmore, J., Bateman, D., Loughlin, J., O'Mara, J., & Aranda, G. (2011). *Research into the connection between built learning spaces and student outcomes*. Victoria, Australia: Department of Education and Early Childhood Development.
- Bogdan, R. and Biklen, S. (2007). *Qualitative research for education: An introduction to theory and methods* (5th ed.). Boston: Allyn and Bacon.
- Brogden, M. (2007). Plowden and Primary School Buildings: a story of innovation without change. *Forum* 49, (1 & 2), 55-66.
- Brooks, J. G., & Brooks, M. G. (2001). *In search for understanding; The case for the constructivist classroom*. New Jersey: Prentice-Hall
- Brubaker, C. (1998). *Planning and designing schools*. New York: McGraw Hill
- Buckley, F. J. (2000). *Team teaching; What, why and how?*. Thousand Oaks, CA: Sage
- Cameron, P., & Robinson, G. (1986) Ten years of open plan. *Set research information for teachers*, 1 (2), 2-19
- Campbell, M., Saltmarsh, S., Chapman, A. , & Drew, C. (2013). Issues of teacher professional learning within 'non-traditional' classroom environments. *Improving Schools*, 16(3), 209-222. doi: 10.1177/1365480213501057
- Christian, C. G. (2011). Ethics and politics in qualitative research. In N.K Denzin & Y. S Lincoln (Eds) *The sage handbook of qualitative research* 4th ed. (pp. 61-80). London: Sage
- Clarke, S. (2014). *Outstanding formative assessment; Culture and practice*. London: Hodder
- Cohen, L. (2010). *A guide to teaching practice* (5th ed). London: Routledge

- Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education* (5th ed.). London: Routledge.
- Colwill, E., & Boyd, R. (2008). Teaching without a mask? Collaborative teaching as feminist practice. *NWSA Journal*, 20(2), 216-231.
- Conderman, G. (2011). Methods for addressing conflict in co-taught classrooms. *Intervention in School Clinic*, 46, 221-229.
- Creswell, J. W. (2002) *Educational Research: Planning, conducting and evaluating qualitative, and quantitative approaches to research*. Upper Saddle River, NJ: Merrill Pearson Education
- Cuban, L. (2004). Whatever happened to the open plan classroom? *Education Next*. Spring 2004, 69-71. Retrieved from:
<http://educationnext.org/theopenclassroom/>
- Denzin, N. K., & Lincoln, Y. S. (2011) The discipline and practice of qualitative research. In N.K Denzin & Y. S Lincoln (Eds) *The sage handbook of qualitative research 4th ed.*(pp.1-19) London; Sage
- Department of Education. (1977). *Report on Open Plan Education in New Zealand Primary Schools*. Wellington: Department of Education.
- Department of Education, Victoria. (2008). *Victorian School Design*. Melbourne: Department of Early Childhood and Education
- Dignath, C., Buettner, G., & Langfeldt, H. (2008). How can primary school students learn self-regulated learning strategies most effectively? A meta-analysis on self-regulation raining programmes. *Educational Research Review* 3.2 pp. 101-129. <http://www.dx.doi.org/10.1016/j.edurev.2008.02.003>
- Dovey, K., & Fisher, K. (2014). Designing for adaption: the school as socio-spatial assemblage. *Journal of Architecture*, 19(1), 43-63. Drew, C., Hardman, M., & Hosp, J. (2008). *Designing and conducting research in education*. Los Angeles, CA: Sage
- DuFour, R., & Eaker, R. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Bloomington, IN: Solution Tree
- DuFour, R. (2011). Work together, but only if you want to. *Kappanmagazine.org*, 92 (5), 57-61. Retrieved from:
http://www.mcpsonline.org/images/4/4f/21CC2011_Work_Together_Want_to.pdf
- Duke, D., B. Showers, & M. Imber. (1980). Teachers and shared decision making: The costs and benefits of involvement. *Educational Administration Quarterly* 16. 93-106.
- Dweck, C. S. (2007). *Mindsets; The new psychology of success*. New York: Random House
- Eaker, R., DuFour, R., & Burnette, R (2002). *Getting started: Reculturing schools to become professional learning communities*. Bloomington, IN: Solution Tree Press
- Edwards, A. (2010). Qualitative design and analysis. In G McNaughton, S. A. Rolfe & I Siraj-Blatchford (Eds). *Doing Early Childhood Research, International perspectives on Theory and practice 2nd ed*. New York: McGraw Hill. Pp. 155-175.

- Education Council. (2015). *Practising Teacher Criteria*. Retrieved from:
<http://educationcouncil.org.nz/content/registered-teacher-criteria-1>
- Education Endowment Foundation. (2015). *Teaching and Learning Toolkit Australia*. Retrieved from:
<http://australia.teachingandlearningtoolkit.net.au/toolkit/meta-cognition-and-self-regulation/>
- Education Review Office. (2015). *Modern New Zealand Learning Practice: glossary*. Retrieved from: <http://www.ero.govt.nz/Review-Process/Modern-New-Zealand-learning-practice-glossary>
- Elmore, R. F. (2004). *School reform from the inside out*. Cambridge, England: Harvard University Press.
- Feiman-Nemser, S. (2012). Beyond Solo teaching. *Educational Leadership* 69 (8), 10-16
- Fisher, K. (2005). Research into identifying effective learning environments. OCED/PEB. *Evaluating Quality in Educational Facilities*. Retrieved from:
<http://www.oecd.org/edu/innovation-education/37905387.pdf>
- Fraser, S. (2000). *Authentic Childhood: Experiencing Reggio Emilia in the Classroom*. Scarborough: Nelson Thomson Learning
- Friend, M., & Cook, L. (1992). The new including: How it really works. *Instructor*, 101(7), 30-36.
- Friend, M. & Cook, L. (2010). *Interactions: Collaboration skills for school professionals*. Upper Saddle River, NJ: Pearson Education Inc.
- Friend, M., Cook, L, Hurley-Chamberlain, D., & Shamberger, C. (2010). Co-teaching: an illustration of the complexity of collaboration in special education. *Journal of Educational and Psychological Consultation*, 20, 9-27.
- Fullan, M. (2007). *The new meaning of educational change* (4th ed.). New York, NY: Teachers College Press.
- Fullan, M. (2011). *Learning is the work*. Unpublished manuscript. Retrieved from
<http://www.michaelfullan.ca/media/13396087260.pdf>
- Fullan, M. (2014). *The principal: Three keys to maximizing impact*. New York, NY: Jossey-Bass.
- Fullan, M., Cuttress, C., & Kilcher A. (2009). 8 Forces for leaders of change. In M Fullan (Ed.), *The challenge of change: Start school improvement now* (2nd ed., pp. 9-20). California, USA: Corwin.
- Gall, M., Gall, J. & Borg, W. (2007). *Educational research. An introduction* (8th ed.). Boston: Pearson.
- Galton, M., Hargreaves, L., Comber, C., Wall, D., & Pell, A. (1999). *Inside the primary classroom 20 years on*. London: Routledge.
- George, P., & Alexander, W. (1993). *The exemplary middle school*. (2nd ed.). New York: Holt, Reinhart and Winston.
- Goe, L. (2013). Quality of Teaching. In J. Hattie & E. M. Anderman (Eds.). *International Guide to Student Achievement*. New York: Routledge. pp. 239-239.
- Green, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, 11 (3), 255-274.

- Gunn, J. H., & King, M. B. (2003). Trouble in Paradise: Power, Conflict, and Community in an Interdisciplinary Teaching Team. *Urban Education*, 38(2), 173-195.
- Hang, Q. & Rabren, K. (2009). An examination of co-teaching: perspectives and efficacy indicators. *Remedial and Special Education*, 30 (5), 259–268.
- Hargreaves, A., & Dawe, R. (1990). Paths of Professional Development: Contrived Collegiality, Collaborative Culture, and the Case of Peer Coaching. *Teaching and Teacher Education*, 6(3), 227-241.
- Hargreaves, A. & Fullan, M. (2012). *Professional capital: Transforming teaching in every school*. New York, NY: Teachers College Press.
- Hargreaves, A. & Shirley, D. (2009). *The fourth way: The inspiring future for educational change*. California, USA: Corwin.
- Hargreaves, D. (1998). *The challenge for the comprehensive school: Culture, curriculum and community*. London: Routledge and Keegan Paul
- Harrison, L. (2010). Quantitative designs and statistical analysis. In G McNaughton, S. A. Rolfe & I Siraj-Blatchford (Eds). *Doing Early Childhood Research, International perspectives on Theory and practice 2nd ed*. New York: McGraw Hill. Pp. 127-154.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta- analyses relating to achievement*. London, England: Routledge.
- Hattie, J. (2012). *Visible learning for teachers: Maximising impact on learning*. London, England: Routledge.
- Hattie, J. (2015). *What doesn't work in Education; The politics of distraction*. London: Pearson
- Hattie, J. (2015b). *What works best in education; The politics of collaborative expertise*. London: Pearson.
- Higgins, S., Hall, E., Wall, K., Woolner, P., & McCaughey, C. (2005). *The impact of school environments; A literature review*. Retrieved from: <http://www.ncl.ac.uk/cflat/news/DCReport.pdf>
- Hord, S, M. (1997). *Professional learning communities: Communities of continuous inquiry and improvement*. Austin, Texas: Southwest Educational Development lab. Retrieved from <http://files.eric.ed.gov/fulltext/ED410659.pdf>
- Hord, S. (1998). *School professional staff as learning community*. Austin, Texas: Southwest Educational Development Laboratory.
- Horne Martin, S. (2002). The classroom environment and its effect on the practice of teachers. *Journal of Educational Psychology* 22(March): 139-56
- Horwitz, R, A. (1979) Psychological effects of the 'Open plan classroom'. *Review of Educational Research* 49 (1), 71-85.
- Hourcade, J., & J. Bauwens. (2002). *Cooperative teaching: Rebuilding and sharing the schoolhouse*. Austin, TX: PRO-ED.
- Hutchinson, D. C. (2004). *A natural history of place in education*. New York: Teachers College Press.
- Jang, S. (2006). Research on the effects of team teaching upon two secondary school teachers. *Educational Research*, 48 (2), 177-194.

- Johnson, B. (2003). Teacher collaboration: good for some, not so good for others. *Educational Studies*, 29 (4), 337-350
- Johnson, B., & Christensen, L. (2008) *Educational Research: Quantitative, qualitative, and mixed approaches*. Thousand Oaks, CA: Sage Publications
- Johnson, D.W., Maruyama, G., Johnson, R., & Nelson, D. (1981). Effectiveness of Cooperative, competitive and individualistic goal structures on Achievement: A meta-analysis. *Psychological Bulletin*, 89:1, 47-62.
- Kise, J. A. G. (2006). *Differentiated coaching: A framework for helping teachers change*. California, USA: Corwin.
- Klehm, Mary, "Teacher Attitudes: The Effects of Teacher Beliefs on Teaching Practices and Achievement of Students with Disabilities" (2013). Open Access Dissertations. Paper 2.
- Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage.
- Levin, B., & Fullan, M. (2009). Learning about system renewal. In M Fullan (Ed.), *The challenge of change: Start school improvement now* (2nd ed., pp. 187-205). California, USA: Corwin.
- Lichtman, M. (2010). *Qualitative research in education. A user's guide* (2nd Ed.). Thousand Oaks: Sage.
- Lincoln, Y. S., Lynham, S. A., & Guba, E.G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. In N. K Denzin & Y. S Lincoln (Eds.), *The Sage Handbook of Qualitative Research*. (pp.97-128). Thousand Oaks, CA: Sage.
- Lovett, S., & Verstappen, P. (2003). *Improving teachers professional learning: The quality learning circle approach*. Retrieved from: http://ir.canterbury.ac.nz/bitstream/10092/500/1/12605714_Lovett%26Verstappen2004.pdf
- Madjar, N., & Assor, A. (2013). Two types of perceived control over learning. In J. Hattie & E. M. Anderman (Eds.). *International Guide to Student Achievement*. New York: Routledge. pp. 439-441.
- Martinho, M., & da Silva, J, F. (2008). *Open plan schools in Portugal: Failure or Innovation?* OECD. Retrieved from: <http://www.oecd.org/portugal/41533062.pdf>
- Marzano, R. J. (2003). *What works in schools: Translating research into action*. Alexandria, VA: ASCD
- Marzano, R. J., Waters, T., & McNulty, B.A. (2005). *School leadership that works: From research to results*. Alexandria, VA: ASCD.
- McDuffie, K. A., Mastropieri, M.A., & Scruggs, T. E. (2009). Differential effects of peer tutoring in co-taught and non co-taught classes: results for content learning and student-teacher interactions. *Exceptional Children*, 75(4), 493-510.
- Ministry of Education. (2007). *The New Zealand Curriculum*. Wellington: Ministry of Education
- Ministry of Education. (2008). *Kiwi Leadership for principals*. Wellington: Ministry of Education
- Ministry of Education. (2011b). *Tātaiako; Cultural competencies for teachers of Māori Learners*. Wellington: Ministry of Education

- Ministry of Education. (2014). *Modern learning environments*. Retrieved from: <http://www.mle.education.govt.nz>
- Ministry of Education. (2015). *Curriculum Implementation Exploratory Studies: Final Report*. Retrieved from: <https://www.educationcounts.govt.nz/publications/curriculum/57760/5>
- Ministry of Education. (2015b). *Flexible Learning Spaces in Schools*. Retrieved from: <http://www.education.govt.nz/school/property/state-schools/design-standards/flexible-learning-spaces/>
- Ministry of Education. (2015c). *Shaping Education- Future Direction; Te Tāreinga Mātauranga*: Ministry of Education. Retrieved from <http://shapingeducation.govt.nz/recovery-programme/background-2>
- Ministry of Education. (2016). Virtual Learning Network. Retrieved from: <http://www.vln.school.nz>
- Murawski, W, W., & Swanson, H, L. (2001). A meta analysis of co-teaching research; Where are the data?. *Remedial and special Education* 22 (5), 258-267
- Mutch, C. (2013). *Doing educational research; A practitioner's guide to getting started*. (2nd ed). Wellington; NZCER Press
- Nair, P. (2014). *Blueprint for tomorrow; Redesigning schools for student centred learning*. Cambridge, MA: Harvard Press.
- Nieto, S. (2003). *What keeps teachers going?* New York: Teachers College Press.
- OECD. (2009). *Creating effective teaching and learning environments; The first results from TALIS*. OECD Publishing. Retrieved from: <http://www.oecd.org/edu/school/43023606.pdf>
- OECD. (2012). *The Nature of learning: Using Research to Inspire Practice*. Practitioner Guide. OECD Publishing. Retrieved from: <http://www.oecd.org/edu/ceri/50300814.pdf>
- OECD. (2013). *Innovative learning environments: Educational research and innovation*. OECD Publishing. <http://dx.doi.org/10.1787/9789264203488-en>
- O'Neill, A. (2004) Mapping the Field: An introduction to curriculum politics in Aotearoa/ New Zealand. In A O'Neill., J Clark., & R Openshaw (Eds.). *Reshaping Culture, knowledge and learning. Policy and content in the New Zealand Curriculum Framework* (pp.25-46). Palmerston North: Dunmore Press.
- Osborne, M. (2013). *Modern Learning Environments*. Retrieved from www2.core-ed.org
- Parnell, R., & Procter, L (2011). Flexibility and Placemaking for autonomy in learning. *Educational & Child Psychology*, 28(1), 77-88.
- Peterson, P, L. (1979). Direct instruction: Effective for what and for Whom. *Educational Leadership*, October, 46-48. Retrieved from: http://www.ascd.com/ASCD/pdf/journals/ed_lead/el_197910_peterson.pdf
- Ploessl, D., Rock, M. L., Schoenfeld, N. A., & Blanks, B. (2010). On the same page: Practical techniques for enhancing co-teaching interactions. *Intervention in School and Clinic*, 45 (3), 158-168.
- Robertson, J. (2005). *Coaching leadership: Building educational leadership capacity through coaching partnerships*. Wellington, New Zealand: NZCER Press.
- Robertson, J. (2008). *The 3 R's for coaching learning relationships*. Policy and Practice. PDT. Retrieved from: <http://www.educationalleaders.govt.nz/Leadership->

- development/Professional-information/Considering-principalship/Mentoring-and-coaching/Coaching-Learning-Relationships
- Robinson, V., Hohepa, M., & Lloyd, C. (2009). *School leadership and student outcomes: Identifying what works and why*. BES. Wellington: Ministry of Education.
- Rosenholtz, S. J. (1991). *Teacher's workplace: The social organisation of schools*. United Kingdom, Harlow: Longman Group
- Ross, J. A. (2013). Teacher efficacy. In J Hattie & E. M. Anderman (Eds.), *International guide to student achievement* (pp. 266-267). New York, NY: Routledge.
- Roth, W. M., Masciotra, D., & Boyd, N. (1999). Becoming-in-the-classroom: a case study of teacher development through co-teaching. *Teaching and Teacher Education*, 15, 771-784.
- Schwab Learning. (2003) Collaboratively speaking: A study on effective ways to teach children with learning differences in the general education classroom. *The Special Edge* 16 (3): 1-4.
- Sergiovanni, T. J. (1992). *Moral leadership: Getting to the heart of school improvement*. San Francisco, CA: Jossey-Bass.
- Sergiovanni, T. J. (2005). *Strengthening the heartbeat: Leading and learning together in schools*. San Francisco, CA: Jossey-Bass.
- Sergiovanni, T. J. (2007). *Rethinking leadership: A collection of articles* (2nd ed.). Australia: Corwin Press.
- Shank, M. J. (2005). Common space, common time, common work. *Educational Leadership*, 62(8), 16-19.
- Sinek, S. (2009). *Start with Why; How great leaders inspire everyone to take action*. New York: Penguin
- Sinek, S. (2013). Golden Circles. Retrieved from : <http://josephnoone.com/tag/golden-circle/>
- Skrtic, T. (1997). The national inquiry into the future of education for students with special needs. *Counterpoint* 4 (7): 6.
- Snape, D and Spencer, L. (2003). The foundation of qualitative research. In J. Ritchie and J. Lewis (Eds.), *Qualitative research practice*. (pp. 1-19). London: Sage Publications.
- Snehi, N (2011). Improving teaching-learning process in schools: A challenge for the 21st century. *Learning Community: An international journal of education & social development*, 2(1), 1-12.
- Spencer, L., Ritchie, J. & O'Connor, W. (2003). In J. Ritchie & J. Lewis (Eds.), *Qualitative research practice. A guide of social science students and researchers* (pp. 109-137). London: Sage Publications.
- Spillane, J. P., Healey, K., Parise, L.M., & Kenny, A. (2011). A distributed perspective on learning leadership. In J. Robertson & H. Timperley (Eds.), *Leadership and learning* (pp. 159-171). London: SAGE Publications Ltd.
- Stake, R. E. (2010). *Qualitative research: Studying how things work*. New York: The Guilford Press

- Stewart, D., & Prebble, T. (1993). *The reflective principal: School development within a learning community*. Palmerston North: ERDC Press, Massey University
- Stoll, L. (2011). Leading professional learning communities. In J. Robertson & H. Timperley (Eds.), *Leadership and learning* (pp. 103-117). London: SAGE Publications Ltd.
- Tanner, C. K. (2015). Influences of school layout and design on student achievement. In J. Hattie & E. M. Anderman (Eds.). *International Guide to Student Achievement*. New York: Routledge. pp. 137-139.
- Tannock, M. T. (2009). Tangible and intangible elements of collaborative teaching. *Intervention in School and Clinic*, 44 (3), 173-178.
- Thorndike, R. M. (1997). *Measurement and evaluation in psychology and education* (6th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Timperley, H. (2008). Teacher professional learning and development. *Educational practice series* (18), 1-31. Belgium: International Academy of Education.
Retrieved from:
http://www.ibe.unesco.org/fileadmin/user_upload/Publications/Educational_Practices/EdPractices_18.pdf
- Timperley, H., & Parr, J. (2004). *Using evidence in teaching practice: Implications for professional learning*. Auckland, New Zealand: Hodder Moa Beckett Publishers Limited.
- Timperley, H. S., & Robinson, V. M. J. (2001). Achieving School Improvement through Challenging and Changing Teachers' Schema. *Journal of Educational Change*, 2(4), 281-300.
- Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher professional learning and development; Best evidence synthesis iteration*. Wellington: Ministry of Education
- Tolich, M., & Davidson, C. (2003). Making sense of the data. In C. Davidson & M. Tolich (Eds.), *Social science research in New Zealand: Many paths to understanding* (2nd Ed). (pp. 154 - 175). Auckland: Pearson Education.
- Troen, V., & Boles, K, C. (2012). *The Power of teacher teams*. Thousand Oaks, CA: Corwin
- University of Kansas. (2014). *Keys to successful co-teaching*. Retrieved from:
http://www.specialconnections.ku.edu/?q=collaboration/cooperative_teaching
- Villa, R, A., Thousand, J, S., & Nevin, A, I. (2006). The many faces of collaborative planning and teaching. *Theory into practice*, 45 (3), 239-248
- Villa, R, A., Thousand, J, S., & Nevin, A, I. (2008). *A guide to co-teaching; Practical Tips for facilitating student learning* (2nd ed). Thousand Oaks, CA: Corwin
- Villa, R, A., Thousand, J, S., & Nevin, A, I. (2013). *A guide to co-teaching, New lessons and strategies to facilitate student learning*. Thousand Oaks, CA: Corwin
- Walsh, J.M. (1992). Student, teacher, and parent preference for less restrictive special education models. *Case in Point*, 6 (2), 1-12.
- Warger, C. L., & Aldinger, L. E. (Eds.). (1986). *Preparing special educators for teacher consultation*. Toledo, OH: College of Education and Allied Professions, University of Toledo.

- Walther-Thomas, C. (1997). Co-teaching experiences: The benefits and problems that teachers and principals report over time. *Journal of Learning Disabilities*, 30, 395-407.
- Welch, M. (2000). Descriptive analysis of team teaching in two elementary classrooms: A formative experimental approach. *Remedial and Special Education*, 21 (6), 366-376
- Wellington, J. (2000). *Educational research: Contemporary issues and practical approaches*. London: Continuum
- Wilson, M. (2015). Future Proofing New Zealand Classrooms. In Press. Retrieved from: <http://www.stuff.co.nz/national/education/76900902/futureproofing-new-zealand-classrooms>
- Wilson, G., & Michaels, C. (2006). General and special education students' perceptions of co-teaching: implications for secondary-level literacy instruction. *Reading and Writing Quarterly*, 22, 205-225.
- Woolner, P. (2010). *The design of learning spaces*. London: Continuum International Publishing Group.
- Yero, J. L. (2010). *Teaching in Mind: How teacher thinking shapes education*. Florida: Booklocker
- Yin, R. K. (2011). *Qualitative research from start to finish*. London: Guilford Press
- York-Barr, J., Ghere, G., & Sommerness, J. (2007). Collaborative teaching to increase ELL student learning: A three-Year urban elementary case study. *Journal of Education for Students Placed at Risk*, 12(3), 301-335.
- Zane, L. M. (2015). *Pedagogy and space*. St. Paul: Redleaf Press
- Zeuli, J. S., & Teizzi, L. J. (1993). *Creating contexts to change teachers' beliefs about the influence of research*. Michigan State University: NCRTL Publications. Retrieved from: <http://education.msu.edu/NCRTL/PDFs/NCRTL/ResearchReports/Rr931.pdf>

8 APPENDICES

8.1 APPENDIX A: Survey questions; Teachers

Thank you for agreeing to participate in this survey regarding co-teaching relationships. The information you provide will help determine themes and overall 'key components of an effective co-teaching relationship' to report in both a thesis and a digital resources for schools in New Zealand and overseas who are interested in co-teaching. No one person or school will be identified in the published thesis and digital resource that will result from this research. You will remain anonymous and you may stop the survey at any point and request your information not be included if you are not comfortable with questions asked or the responses you have given.

For the purpose of this survey, co-teaching is defined as; *"Two or more teachers working together collaboratively to deliver instruction to a heterogeneous group of students in a shared instructional space. In this environment teachers blend their expertise, share materials and develop common instructional goals"* (Friend and Cook, 2010)

This survey may take up to 60 minutes so please make sure you have set aside uninterrupted time.

Teachers Survey

Gender M/F

How long have you been teaching for? Drop down box yrs

How long have you been co-teaching for? Drop down box yrs

Comment:

What type of space are you working in? Drop down box: New MLE? Retro fit

Comment:

How many registered teachers work in your learning space ? Drop down box number

How many children are in the space you are working in? Drop down box number

How many are currently in your co-teaching relationship?

(In some schools although the space may hold 150 children groups of teachers and children work together specifically as co-teachers, for example it may be a five teacher space with co-teachers in a group of three and a group of two)

Drop down box number

Is your space multi-level or a single year group? Drop down box Multi/ Single

If multi-level how many year levels are represented in the space? Drop down box number

Your co-teaching team:

Who determined who you would co-teach with? Drop down box: Me, Leadership, Other

Comment:

Did you have any input into the decision making about who would be in your co-teaching relationship?

(For example were you asked who you would like to work with and why and perhaps who you would not like to work with?)

Drop down box Yes/ No

Do you think teachers should have input into who they co-teach with?

Comment:

Who should make the final decision about co-teaching relationships?

Comment:

What is your preference for the number of teachers in a co-teaching relationship? Drop down box number

Why?

Select your top 5 characteristics you seek in others you will be co-teaching with

Effective Communicator, honest, trusting, excellent curriculum knowledge, lifelong learner, similar personality, tidy, quiet, extrovert, introvert, organised, forgiving, teaching skill, having different strengths from me, supportive, encourager, sense of humour, reliable, prompt, respected by others, perseverance, hardworking, accurate, confidential, will challenge me, detailed, ideas person, patient

Professional learning:

Were you provided with any professional learning about co-teaching prior to moving into a co-teaching relationship? Drop down box Yes/No

If yes please describe...

Please describe how professional learning about co-teaching has assisted your co-teaching relationship:

Comment box

What other professional learning do you think would help you to be more effective in a co-teaching relationship?

Comment box:

What professional learning you would recommend to staff moving into a co-teaching relationship?

Comment box:

How important is professional learning in creating an effective co-teaching relationship (1-5)

Drop down box 1- not important, 5 extremely important(1-5)

How have your ideas and experiences about professional learning changed since working in a co-teaching relationship?

Comment:

Release time:

What release time do you have **with** your co-teaching partner/s each week?

Is this sufficient? Drop down box Yes/No

Why/why not?

How often do you meet each week with your co-teacher/s (other than formal release time)?

Drop down box: Daily/twice a week/ three times a week

On average in minutes how long do you meet for at these times? Drop down box:

5/10/15/20/25/30/35/40/45/50/55/60

Why do you meet?

What would be the ideal release time arrangement for you **with** your co-teaching partner/s?

How important is release time in creating an effective co-teaching relationship (1-5)

Drop down box 1- not important, 5 extremely important(1-5)

Systems: (including monitoring and reporting)

Home room: For the purposes of this section your 'home room' children are those you are designated with regarding well-being and monitoring progress and achievement.

In your co-teaching relationship do you have a 'home room' or set of children you are specifically responsible for? Drop down box Yes/No

Who decided who your home room children would be for 2015?

Drop down box:

Leadership/ Leadership with teacher input/ Teachers/ Other

Do you teach children outside of your homeroom group?

Drop down box Yes/No

How do you plan for these children? Drop down box Paper/Online

Is there a requirement you share planning and assessment with your co-teachers? Drop down box Yes/No

Do you consider this system is effective? Drop down box Yes/No

Comment:

Summary: How important is having effective systems in place in creating an effective co-teaching relationship (1-5)

Timetabling:

Who determines the timetable for your co-teaching team? Drop down box:

Teachers/Leadership/leadership and teachers/other

Does decision making regarding timetabling effect the quality of your co-teaching relationship?

Drop down box Yes/No

Comment:

How important is timetabling in creating an effective co-teaching relationship (1-5)

Multi-level classes:

Does having a multiyear level co-teaching partnership impact positively or negatively on your co-teaching relationship? Drop down box Positively/Negatively

Why?

Resources:

Does the provision of or lack of resources impact of the effectiveness of your co-teaching relationship? Drop down box Yes/No

Comment?

Physical space: (Noise, breakouts)

Does, or in the past has, the volume your co-teacher speaks/ gives instruction/ teaches at, have any impact on the effectiveness of your co-teaching relationship? Drop down box Yes/No

If yes please elaborate below.

Does the physical space play any part in the effectiveness of you co-teaching?

Comment:

Leadership within the learning space:

Is there a defined hierarchy in your learning environment? (For example a team leader or syndicate leader)

Drop down box Yes/No

Describe:

Has this impacted on the effectiveness of your co-teaching relationship ? Drop down box Yes/No

Comment:

Has the leadership of the school assisted in the establishment of an effective co-teaching relationship? Drop down box Yes/no

If Yes, how?

If No what have been the challenges from your perspective?

How important is leadership **within** your co-teaching environment in creating an effective co-teaching relationship (1-5)

How important is school leadership in creating an effective co-teaching relationship (1-5)

Relationships:

Does your co-teaching relationship impact on your relationship with other staff in any way?

Comment box:

What (if any) specific strategies do you employ to develop relationships with children who **are not** in your home room?

Comment:

What strategies/systems do you have to maximise relationship with your own home room children?

Comment:

How important is relationship with children in creating an effective co-teaching relationship (1-5)

In your space who has responsibility for communicating with family and whānau?

Are there any methods or systems that you use to enhance relationships with family/whānau in your co-teaching relationship?

How important is relationship with family /whānau in creating an effective co-teaching relationship (1-5)

Effectiveness:

How do you 'measure' the effectiveness of your co-teaching relationship? Comment box

General:

Are there any things you believe will negatively impact on a co-teaching environment that have not been discussed above?

Is there any specific advice you would want to give to leadership and boards of trustees when establishing a co-teaching environment?

Is there any specific advice you would want to give to teachers heading into a co-teaching relationship for the first time?

General Comments:

8.2 APPENDIX B: Survey questions; Deputy principals and principals

Principals and DP's Survey

Does your school have a clear belief statement/rationale about why co-teaching is the preferred method of teaching at your school? Drop down box Yes/No

If yes what is that belief?

Who were the stake holders in creating the belief statement?

Comment:

Is there any process to ensure that this belief statement is enacted in day to day practice?

Comment:

Does your school have specific co-teaching strategies that are implemented across your school? Drop down box Yes/No

If yes, what are these strategies?

Is the implementation of co-teaching consistent across your school? Drop down box Yes/No

If yes how do you know?

Is the practice of co-teaching included in your appraisal system? Drop down box Yes/No

Why/why not?

What professional learning was provided to teachers specifically in preparation for co-teaching?

Comment:

How do you define co-teaching at your school?

Comment:

How was co-teaching introduced to your community?

Comment:

How important is co-teaching to you as a leader in improving outcomes and well-being of learners? (1-5)

Has co-teaching changed your appointments or staff placement process?

Comment:

What (if any) research or evidence did your school take into account when determining co-teaching was the method of teaching expected at your school?

Comment:

What are the conditions that you believe must be in place for effective co-teaching to occur?

Comment:

How do you determine if the co-teaching relationships at your school are effective?

Comment:

What advice would you give to schools to assist the development of effective co-teaching relationships?

Comment:

8.3 Appendix C: Interview Questions; Teachers

Teachers Interview

What does co-teaching mean to you?

Why do you co-teach?

Can you talk me through the process that led to you co-teaching (preparation/PL)?

Do you consider your co-teaching relationship to be successful and effective?

Why?

How do you determine success or effectiveness?

What are the things that make your co-teaching relationship effective?

Can you describe some of the challenges you have had along the way?

If you were to describe / identify the five most important components of creating an effective co-teaching relationship what would they be?

If you started again what would you do differently?

8.4 Appendix D: Interview questions; Principals and DP's

Principals and DP's Interview

Why is your school using co-teaching as a strategy for teaching and learning?

Who decided to implement co-teaching?

What processes did you use to prepare staff for co-teaching?

What processes did you use to prepare children for a co-teaching environment?

What processes did you use to prepare the community for co-teaching school?

What do you see as the benefit of co-teaching as opposed to traditional teaching?

What does your school consider to be the key components to creating effective co-teaching relationships?

8.5 Appendix E: Information letter for participants

Neill O'Reilly

Ph: 0272703300

principal@waitakiri.school.nz

March 2015

Key components of an effective co-teaching relationship *survey*

Information sheet for teachers and principals

I am a postgraduate student researcher at the College of Education, University of Canterbury and the principal of a merged school in Christchurch New Zealand. Our school is in the process of a total rebuild as a modern learning environment (MLE) with eight learning studios ranging in size from 60 children and three teachers to 120 children and four to five teachers. Our school is the first of many that will be rebuilt or remodelled to be MLE's with a focus on collaborative teaching and learning and in particular, co-teaching. The purpose of my research is to determine the key components of an effective co-teaching relationship. To do this I will be asking teachers and principals who have experience in co-teaching to participate in a study. The research findings will be valuable to many schools embarking on, or considering changes to teaching environments and practices.

I would like to invite you to participate in my study by completing an anonymous survey inquiring about your experiences of co-teaching. If you agree to take part you will be sent a link to access the online survey which will take approximately 45 minutes.

Please note participation in this study is voluntary. If you do participate, you have the right to withdraw from the study prior to submission of the online survey. However, once you have submitted the survey form I will not be able to remove your data as there will be nothing to link your identity to your responses. You may however decide to not complete the survey, or choose to leave some questions blank. There is no penalty for withdrawing in this way.

I will take particular care to ensure the confidentiality of all data gathered for this study. I will also take care to ensure the anonymity of all individuals and schools in publications of the findings. All the data will be securely stored in password-protected facilities and locked storage at my home for five years following the study. It will then be destroyed.

The results of this research may be used to assist schools and groups establish or improve co-teaching relationships in their organisation. The results will be reported through the local principals' group (Canterbury Primary Principals Association, CPPA) in a digital resource as well as being shared at national and international conferences. All participants will receive a report on the study.

If you have any questions about the study, please contact me (my details are above) or my supervisor Dr Julie Mackey (Julie.mackey@canterbury.ac.nz). If you have a complaint about the study, you may contact the Chair, Educational Research Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz). If you agree to participate in this study, please complete the attached consent form and return it to me by 30 May 2015.

Thank you for considering taking part in this project.

Neill O'Reilly

8.6 Appendix F: Consent for participants

Neill O'Reilly
Ph: 0272703300
principal@waitakiri.school.nz
March 2015

Key components of an effective co-teaching relationship study Consent form for teachers and principals

I have been given a full explanation of this project and have been given an opportunity to ask questions.

I understand what will be required of me if I agree to take part in this project.

I understand that my participation is voluntary and that I may withdraw at any stage without penalty.

I understand that any information or opinions I provide will be kept confidential to the researcher and that any published or reported results will not identify me.

I understand that all data collected for this study will be kept in locked and secure facilities at my home and will be destroyed after five years.

I understand that I will receive a report of the findings of this study. I have provided my email details below for this.

I understand that if I require further information I can contact the researcher (Neill O'Reilly) or his supervisor Dr Julie Mackey. If I have any complaints I can contact the Chair of the University of Canterbury Educational Research Human Ethics Committee.

By signing below, I agree to participate in this research project.

Name: _____

Date: _____

Signature: _____

Email address: _____

Please return this completed consent form to Neill O'Reilly by 15 May 2015

8.7 Appendix G: Information letter for Boards of Trustees

Neill O'Reilly March 2015

Ph: 0272703300

principal@waitakiri.school.nz

Key components of an effective co-teaching relationship survey and interview

Information sheet for Boards of Trustees

I am a postgraduate student researcher at the College of Education, University of Canterbury and the principal of a merged school in Christchurch New Zealand. Our school is in the process of a total rebuild as a modern learning environment (MLE) with eight learning studios ranging in size from 60 children and three teachers to 120 children and four to five teachers. Our school is the first of many that will be rebuilt or remodelled to be MLE's with a focus on collaborative teaching and learning and in particular, co-teaching. The purpose of my research is to determine the key components of an effective co-teaching relationship. To do this I will be asking teachers and principals who have experience in co-teaching to participate in a study. The research findings will be valuable to many schools embarking on, or considering changes to teaching environments and practices.

I would like the Board's permission to invite staff at your school to participate in my study. If they agree to take part they will be asked to complete an online survey regarding co-teaching. This survey will take approximately 45 minutes. The survey will be anonymous with a link sent to participants to access the survey if they agree to participate. A smaller group (one or two per school) will also be asked to participate in individual semi-structured interviews regarding co-teaching. This will take place at school, or a place convenient to the participant, and each interview will take approximately 60 minutes.

Please note participation in this study is voluntary. Those who do participate, have the right to withdraw from the study at any time without penalty. If they withdraw, I will do my best to remove any information relating to them, provided this is practically achievable. Survey data, once submitted, will not be able to be extracted as the identity of the participant cannot be linked to their responses.

I will take particular care to ensure the confidentiality of all data gathered for this study. I will also take care to ensure the anonymity of all schools and individuals in publications of the findings. All the data will be securely stored in password-protected facilities and locked storage at my home for five years following the study. It will then be destroyed.

The results of this research may be used to assist schools and groups establish or improve co-teaching relationships in their organisation. The results will be reported through the local principals group (Canterbury Primary Principals Association, CPPA) in a digital resource as well as being shared at national and international conferences. All participants will receive a report on the study.

If you have any questions about the study, please contact me (my details are above) or my supervisor Dr Julie Mackey (Julie.mackey@canterbury.ac.nz). If you have a complaint about the study, you may contact the Chair, Educational Research Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz). If you agree to staff from your school participating in this study, please complete the attached consent form and return it to me by 15th May 2015.

Thank you for considering taking part in this project.

Neill O'Reill

8.8 Appendix H: Consent form for the Board of Trustees

Neill O'Reilly
Ph: 0272703300
principal@waitakiri.school.nz
March 2015

Key components of an effective co-teaching relationship study Consent for staff participation from the Boards of Trustees

We have been given a full explanation of this project and have been given an opportunity to ask questions.

We understand what will be required of staff if they agree to take part in this project.

We understand that participation is voluntary and participants may withdraw at any stage without penalty.

We understand that any information or opinions staff provide will be kept confidential to the researcher and that any published or reported results will not identify the staff or the school.

We understand that all data collected for this study will be kept in locked and secure facilities at my home and will be destroyed after five years.

We understand participants will receive a report of the findings of this study.

We understand that if participants require further information they can contact the researcher (Neill O'Reilly) or his supervisor Dr Julie Mackey. If participants have any complaints we understand they can contact the Chair of the University of Canterbury Educational Research Human Ethics Committee.

By signing below, on behalf of the Board of Trustees I agree to staff of our school participating in this research project.

Name: _____

Date: _____

Signature: _____

Email address: _____

Please return this completed consent form to Neill O'Reilly by 15.5.15

8.9 Appendix I: Flexible Learning Space Examples

8.10 Appendix J: Designing Quality Learning Spaces Guidelines

ABOUT US > CONTACT

EDUCATION.govt.nz
from the Ministry of Education

HOME

HOME: 5-19 years > Property > State schools property management > Design standards for school property > Flexible learning spaces > Designing quality learning spaces |

Designing quality learning spaces in schools

As a board of trustees, when you are upgrading your school's learning spaces, you must comply with Designing Quality Learning Spaces (DQLS) guidelines as part of creating Innovative Learning Environments (previously called Modern Learning Environments). This includes meeting the Ministry's standards for acoustics, heating and ventilation, and lighting.

Creating quality learning spaces

It is important that learning spaces are healthy and comfortable for students to spend many hours inside. The most important elements of the environment to consider are air quality, heating, lighting and acoustics.

Because these elements are so important, we have developed the Designing Quality Learning Spaces (DQLS) guidelines in partnership with the Building Research Association of New Zealand (BRANZ).

The DQLS guidelines set out the Ministry's standards that learning spaces must meet when they are being upgraded, and advice on how to achieve these.

Meeting the standards in the DQLS guidelines

When you are upgrading your school buildings, you need to make sure that your internal learning space design complies with the standards set out in the DQLS guidelines.

Download and use these guidelines to become familiar with the minimum design standards expected by the Ministry, and to brief consultants and tradespeople on your requirements when planning upgrades.

The DQLS guidelines include:

- [acoustics](#) [PDF, 1.8 MB]
- [air quality](#) [PDF, 2.7 MB]
- [heating, temperature and insulation](#) [PDF, 2.7 MB]
- [lighting](#) [PDF, 1.8 MB].

8.11 Innovative Learning Environment Assessment Tool

Innovative Learning Environment assessment Tool, Version 1.1 (MOE NZ)

Complete all white boxes

School number
 School name
 School type
 District

Comp
 Desig
 Signe
 Date

Requirements	FLS	Rating	School priorities
1 Condition Assessment as required in the property pages on education.govt.nz has been completed and any essential infrastructure work identified has been incorporated in the school's 10YPP and EVA	Yes / No	Core	Yes / No
2 All work identified under Building Warrant of Fitness (BWOFF) has been actioned	Yes / No	Core	Yes / No
3 All urgent health and safety work has been identified and incorporated into the 10YPP	Yes / No	Core	Yes / No
4 The school's 10YPP identifies where its buildings require reinvestment to maintain their economic life and educational suitability for 21st century learning	Yes / No	Core	Yes / No
1) General learning Spaces (Classrooms) - Flexibility			
<i>Do classrooms support a variety of teaching/learning activities?</i>			
1 Can students work independently or in small groups within the classrooms (ie is there sufficient space and flexibility)	Yes / No	Core	Yes / No
2 Are there breakout areas where students can work independently, with peers or one on one with a teacher/assistant	Yes / No	Core	Yes / No
3 Can a teacher operate effectively from any location in the room	Yes / No	Core	Yes / No
4 Does the classroom design allow teachers to work co-operatively with teachers from other classrooms or specialist disciplines eg are there moveable walls between spaces or access to shared spaces	Yes / No	Moderate	Yes / No
5 Is there visual transparency, eg glass windows/walls, between learning spaces and other areas, such as corridors, breakout spaces, staff work rooms	Yes / No	Moderate	Yes / No
6 Are there outside areas for learning directly accessible from ground floor classrooms	Yes / No	Moderate	Yes / No
2) Communities of Learners			
<i>Does the design of learning spaces support the creation of communities of learners and independent learning?</i>			
1 Are classrooms grouped around shared spaces (eg Whanau/Awhina/commons spaces or learning streets)	Yes / No	Advanced	Yes / No
2 Can the shared spaces be used for presentations or performances (music, dance, drama), general learning and student social interaction	Yes / No	Advanced	Yes / No
3 Are there small quiet spaces throughout the school for small groups to gather in productive study and conversation	Yes / No	Advanced	Yes / No
4 Are there areas within groupings of classrooms for project making/wet work, small focus groups, meetings for staff and students	Yes / No	Advanced	Yes / No
5 Can student work be displayed throughout the school and is prominence given to specific display areas (eg for special displays of local art, culture, student achievement)	Yes / No	Advanced	Yes / No
3) Information and Communications Technology (All Learning and Support Spaces)			
<i>Do the learning spaces allow for students and teachers to integrate ICT into their work?</i>			
1 Is ICT integrated into all teaching and staff/student support spaces to allow for effective E-learning to take place (ie do students and staff have ready access to computers and other electronic resources)	Yes / No	Core	Yes / No
2 Can interactive white boards, data shows or other multi-media be used in all teaching spaces (ie are there sufficient power connections and lighting control for all)	Yes / No	Core	Yes / No
3 Do the rooms meet the requirements of the Ministry's ICT cabling standards	Yes / No	Core	Yes / No
4 Do all rooms have access to wireless technology	Yes / No	Core	Yes / No
5 Is there provision for storing and recharging laptop computers and tablets used by students	Yes / No	Core	Yes / No
4) Furniture - Classrooms			
<i>Does the furniture enable flexible use of learning spaces and provide for student comfort and safety?</i>			
1 Does the furniture allow for collaborative or small group work and enable the creation a variety of room layouts	Yes / No	Core	Yes / No
2 Is the furniture ergonomically designed and suitable for a variety of student physical sizes	Yes / No	Moderate	Yes / No

Innovative Learning Environment assessment Tool, Version 1.1 (MOE NZ)

Complete all white boxes

5) Science/Art		FLS	Rating	School priorities
Is there provision for the practical aspects of the science and art curriculum?				
1	Primary/Intermediate - Is there provision for the practical aspects of science and art in the classrooms or in a nearby shared space eg access to water, power and the ability to make things (could be part of a shared or Multi-purpose space [MPS])	Yes / No	Core	Yes / No
2	Secondary - Are science rooms able to be used as flexible spaces with movable tables while retaining provision for hands-on experiments within the rooms or nearby	Yes / No	Core	Yes / No
3	Secondary - Are there preparation spaces for science experiments and fume cupboards	Yes / No	Core	Yes / No
4	Secondary - Is there storage for chemicals, dangerous goods, science equipment, art materials and work in progress	Yes / No	Core	Yes / No
6) Technology				
Is there provision for the technology curriculum?				
1	Primary years 1-6 - Is there space for the practical aspects of the curriculum eg the ability to teach food, materials and electronics technology (this could be part of a shared MPS)	Yes / No	Core	Yes / No
2	Secondary/Intermediate and Primary years 7-8 Technology Centres - Is there storage for solvents, fume and dust extraction from material areas	Yes / No	Core	Yes / No
3	Secondary/Intermediate/Primary years 7-8 Technology Centres - Do the technology facilities provide for design, electronics, ICT	Yes / No	Moderate	Yes / No
7) Performing Arts				
Is there space(s) where the performing arts curriculum can be taught?				
1	Primary/Intermediate above roll 120 - Is there space(s) available for the performing arts either as part of the general classroom space or as a separate MPS	Yes / No	Core	Yes / No
2	Secondary - Are there spaces with supporting practice areas, storage or changing for music tuition, music performance, dance and drama	Yes / No	Core	Yes / No
8) Health and PE space				
Is there provision for health and physical education?				
1	Primary - Are there areas for a range of physical activities	Yes / No	Core	Yes / No
2	Primary over 120 and intermediate - Is there a space available for the health and physical aspects of the curriculum (eg multi purpose space or hall). The space could also be used for other activities	Yes / No	Core	Yes / No
3	Secondary - Do gym facilities include changing rooms, showers and toilets	Yes / No	Core	Yes / No
4	Secondary - Is there provision for a range of physical activities. This might include sports, games, an exercise or weight training area, climbing walls, running track, cross country etc	Yes / No	Core	Yes / No
9) Student Support Spaces				
Are there home bases for students to meet socially or work with peers, or space to reference learning resources eg books?				
1	Do students have secure storage for personal effects, bags, coats, books and sports gear	Yes / No	Core	Yes / No
2	Is there space available for storing and reviewing information such as books or electronic resources, and reproducing digital and hard copy information	Yes / No	Core	Yes / No
3	Are there outdoor landscaped areas with seating and tables for student learning and /or social interaction, near the classrooms	Yes / No	Core	Yes / No
4	Do students have access to a home base near their general classroom learning spaces or an area where they can socialise or work with peers (could also serve as 2.2 above)	Yes / No	Moderate	Yes / No
5	Are the home bases suitably furnished with soft furnishing or informal type furniture	Yes / No	Moderate	Yes / No
10) Teacher Support Spaces				
Do teachers have access to support spaces?				
1	Do teachers have work spaces to plan collaboratively with other teachers, prepare class materials or write reports when not in their classrooms	Yes / No	Core	Yes / No
2	Can teachers secure their personal resources	Yes / No	Core	Yes / No
3	Are there learning resources available near the work spaces, and space for storing and viewing or reproducing digital and hard copy	Yes / No	Core	Yes / No
4	Are there spaces for teachers and support staff to meet as a group, socially, interview students and parents	Yes / No	Core	Yes / No
5	Are the work spaces transparent to students who can see teachers working or have access to them	Yes / No	Moderate	Yes / No

Innovative Learning Environment assessment Tool, Version 1.1 (MOE NZ)

Complete all white boxes

11) Internal Environment		FLS	Rating	School priorities
<i>Have the requirements of the Ministry's Designing Quality Learning Spaces (DQLS) guides</i>				
A) General				
1	Have staff and students been surveyed to identify any concern about the internal environment of their learning spaces (eg DQLS forms) and has any work to correct this been included in the schools 49/DP	Yes / No Yes / No	Core	Yes / No Yes / No
B) Acoustics				
1	Are classroom ceilings and walls lined with acoustics absorbent materials	Yes / No	Core	Yes / No
2	Do specialist facilities, eg materials technology spaces and music rooms, have appropriate acoustic treatment	Yes / No	Core	Yes / No
3	Do all learning spaces comply with the ambient noise levels, reverberation times and STC ratings set out in tables 6 and 7 of the DQLS Acoustics Design Guide eg for classrooms <ul style="list-style-type: none"> Ambient sound levels in unoccupied room are 35db - 45db NC maximum of 35 Reverberation time maximum of 0.4 seconds STC and IIC between teaching areas a minimum of 55db 	Yes / No	Core	Yes / No
		Yes / No	Core	Yes / No
		Yes / No	Core	Yes / No
		Yes / No	Core	Yes / No
4	Are there any unique issues such as external road noise interference that need to be addressed	Yes / No	Core	Yes / No
C) Air Quality				
1	Do all learning spaces have natural ventilation, including cross ventilation	Yes / No	Core	Yes / No
2	Are all windows in working order	Yes / No	Core	Yes / No
3	Do all learning spaces provide the minimum ventilation rates as set out in tables 1 and 2 of the DQLS Ventilation and Air Quality Design Guide	Yes / No	Core	Yes / No
4	Is there any evidence of mould, mildew or condensation in learning spaces which might indicate poor indoor air quality issues	Yes / No	Core	Yes / No
D) Heating				
1	Are room temperatures able to be maintained at the levels set in the DQLS Heating, Temperature and Insulation Design Guide, eg classrooms between 18-20C in winter, as well as maintain the recommended ventilation rates	Yes / No	Core	Yes / No
2	Is the heating temperature able to be controlled by the classroom teacher	Yes / No	Core	Yes / No
3	Are teaching spaces free from excessive solar heat gain	Yes / No	Core	Yes / No
4	Has the existing heating system been evaluated for energy efficiency on a life cycle costing basis	Yes / No	Core	Yes / No
E) Insulation				
1	Are ceilings in learning spaces insulated	Yes / No	Core	Yes / No
2	In suspended timber framed buildings, are the floors insulated	Yes / No	Core	Yes / No
3	Are external walls in learning spaces insulated	Yes / No	Advanced	Yes / No
F) Lighting				
1	Is there adequate natural lighting without glare	Yes / No	Core	Yes / No
2	Do the lighting levels in learning spaces comply with the DQLS Lighting Design Guide	Yes / No	Core	Yes / No
3	Are natural and artificial lighting levels able to be controlled by the teacher for projection	Yes / No	Core	Yes / No
12) Health and Safety		FLS	Rating	School priorities
<i>Are toilets hygienic and grounds and buildings safe and secure?</i>				
1	Are toilets clean with impervious surfaces, well ventilated and free from smells	Yes / No	Core	Yes / No
2	Do all toilets have warm water for hand washing and hand drying facilities	Yes / No	Core	Yes / No
3	Have toilets been upgraded in the last 20 years	Yes / No	Core	Yes / No
4	Have students raised issues about the condition or safety aspects of the facilities	Yes / No	Core	Yes / No
5	Are there areas within the buildings or grounds where supervision is difficult	Yes / No	Core	Yes / No

Innovative Learning Environment assessment Tool, Version 1.1 (MOE NZ)

Complete all white boxes

13) Sustainability		FLS	Rating	School priorities
<i>Is the school developing a sustainable approach to the use of resources?</i>				
1	Are water saving devices installed in urinals and hand basins	Yes / No	Core	Yes / No
2	Does the school have energy efficient heating and lighting systems	Yes / No	Core	Yes / No
4	Is grey water used for toilets, urinals or irrigation	Yes / No	Advanced	Yes / No
5	Are alternative energy sources being used eg solar energy	Yes / No	Advanced	Yes / No

14) Accessibility		FLS	Rating	School priorities
<i>Are the site and buildings easily accessible to all students, teachers and the community?</i>				
1	Is there is at least one parking space requiring a disability permit at the entrance	Yes / No	Core	Yes / No
2	Are taxis and vans able to pick up and drop off special needs students in a weather protected entrance to the school buildings	Yes / No	Core	Yes / No
3	Are students and staff in wheelchairs able to access key areas of the school	Yes / No	Core	Yes / No
4	Is quiet space set aside for addressing particular emotional and/or intellectual needs of students	Yes / No	Core	Yes / No
5	Is the site well signposted for someone to find their way around the school	Yes / No	Core	Yes / No
6	Is there access to and within all buildings, showers and change facilities for disabled students enrolled at the school	Yes / No	Moderate	Yes / No

15) Specialist Facilities		FLS	Rating	School priorities
<i>Are specialist facilities in reasonable condition?</i>				
1	Intermediate/technology centres/secondary schools - Have the specialist facilities for the subjects listed below been modernised within the last 25 years:			
	• Science	Yes / No	Core	Yes / No
	• Technology	Yes / No	Core	Yes / No
	• Art	Yes / No	Core	Yes / No
	• Music	Yes / No	Core	Yes / No
	• Drama	Yes / No	Core	Yes / No
	• Physical education	Yes / No	Core	Yes / No

16) Connection to the Community and Life Long Learning		FLS	Rating	School priorities
<i>Does the design of the school buildings support the connection to the community and life-long learning?</i>				
1	Are there facilities that support student health and welfare eg medical, social, counselling needs, outside service agencies such as Child Youth and Family or Police	Yes / No	Core	Yes / No
2	Is the cultural diversity of the school's community recognized in the design of the school or its surrounding environment	Yes / No	Advanced	Yes / No
3	Is the community able to support student learning by accessing part of the school for lectures, demonstrations, presentations or working with teachers	Yes / No	Advanced	Yes / No

17) Supporting Environmental, Science, Technology and Mathematics, Education		FLS	Rating	School priorities
<i>Does the design of the buildings and grounds support technology, environmental, maths and science education?</i>				
1	Can food technology areas support cafeteria or food serving arrangements for students	Yes / No	Advanced	Yes / No
2	Are mechanisms and structures in the buildings visible	Yes / No	Advanced	Yes / No
3	Is the landscape used for learning eg eco ponds, horticulture, green house, chess set, waste land converted to nature gardens	Yes / No	Advanced	Yes / No